AUTOMOTIVE INDUSTRIES
The AUTOMOBILE

Volume 67 Number 25

Reg. U. S. Pat. Off.

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Contents

Automotive Industries is published every Saturday by

CHILTON COMPANY

Chestnut and 56th Streets, Philadelphia, Pa.

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Automotive Industries Advertising Manager

Cable Address .....Autoland, Philadelphia

Telephone .....Sherwood 1424

OFFICES

New York—U. P. C. Bldg., 239 W. 39th St., Phone Pennsylvania 6-0080

Chicago—367 West Adams St., Phone Randolph 9448

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Los Angeles—Room 651, 1206 Maple St., Phone Westmore 6477

Portland, Oregon—72 Fifth St.

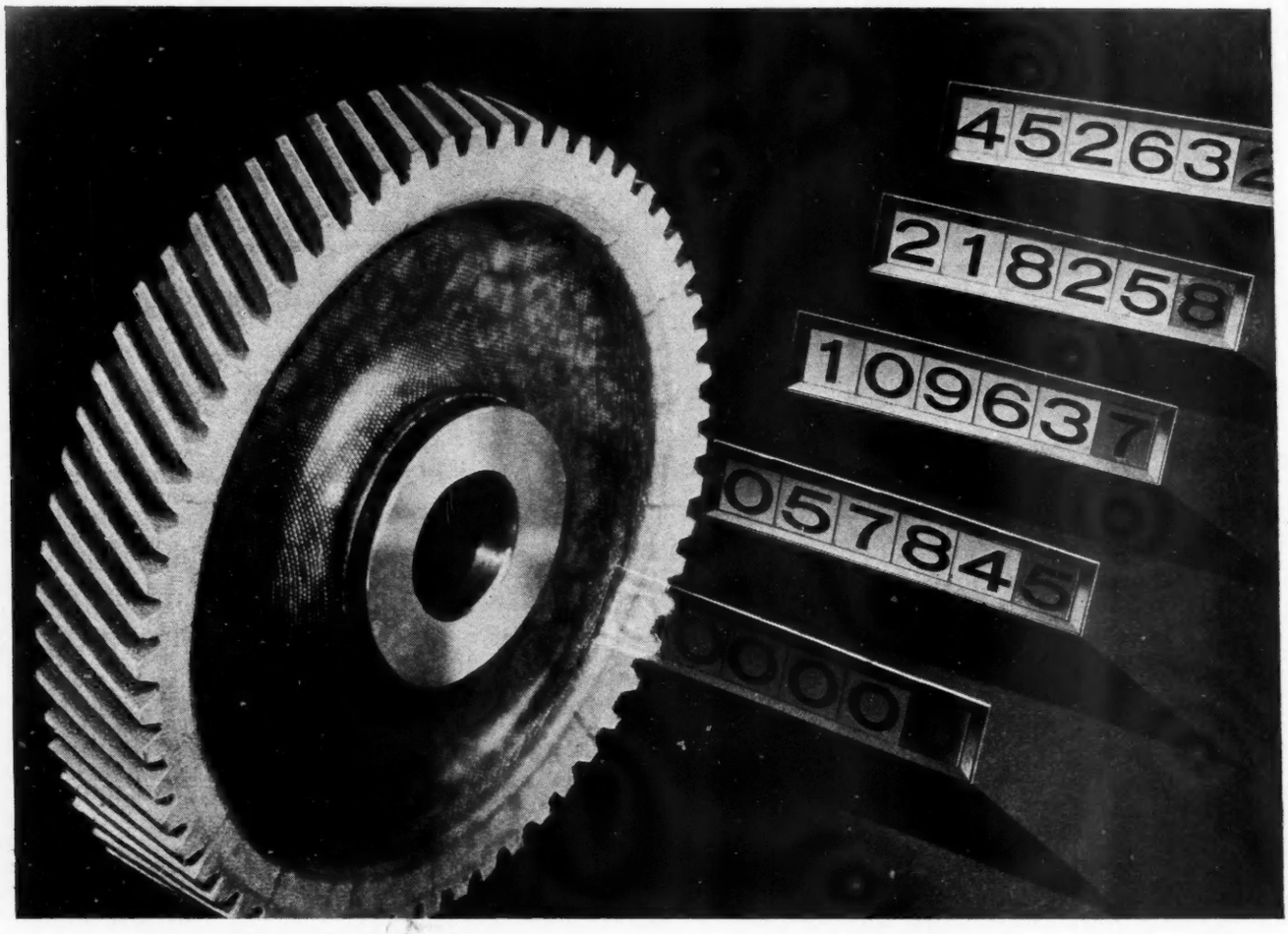
Controlled by United Business Publishers, Inc., 239 W. 39th St., New York; ANDREW C. PEARSON, Chairman, Board of Directors; FRITZ J. FRANK, President; C. A. MUSSELMAN, Vice-President; F. C. STEVENS, Treasurer.

SUBSCRIPTION RATES: United States, United States Possessions, and all countries in the Postal Union, $1.00 per year; Canada and Foreign, $4.00 per year. Single Copies 25c.

Member of the Audit Bureau of Circulations

Member Associated Business Papers, Inc.

Automotive Industries—The Automobile is a consolidation of the Automobile monthly) and the Motor Review (weekly), May, 1902; Dealer and Repairman (monthly), October, 1903; the Automobile Magazine (monthly), July, 1907, and the Horseless Age (weekly), founded in 1895, May, 1918.



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THE MATERIAL OF A THOUSAND USES

AUTOMOTIVE INDUSTRIES

Vol. 67 No. 25 • THIRTY-FOURTH YEAR • December 17, 1932

Trade Show Reveals Optimistic Maintenance Outlook for 1933

After-market manufacturers and wholesalers plan aggressive educational and sales campaigns—Buying at show exceeds expectations

by
Leon F. Banigan
Marketing Editor
*Chilton Co.

A NEW appreciation of the rising importance of maintenance in the automobile industry was impressed upon the motor-minded of Detroit last week by the Joint Trade Show and conventions participated in by manufacturers and jobbers who build and distribute merchandise required in the great after-markets created by the automobile.

In the Convention Hall, the industry witnessed a showing of modern equipment, tools, parts, accessories and maintenance supplies, occupying approximately 75,000 sq. ft. and furnished by more than 250 contributing manufacturers. To that great trade show were drawn more than 1000 wholesalers and manufacturer agents interested primarily in maintenance.

The composite picture of the Show presented evidence of tremendous forward steps, not only in engineering and production, but in marketing and merchandising plans for 1933 in the industry's aftermarket. In the shop equipment division, there were many improved devices designed to more efficiently and economically handle automotive service. Coincident with the announcements of new equipment, a group of shop equipment manufacturers, the Shop Equipment Associates, announced a nation-wide educational and merchandising campaign participated in by wholesalers and directed to dealers and repairmen under the title, "Make More Money Merchandising Maintenance."

The parts manufacturers were among the leaders in presenting new merchandise to meet the demands of modern motor and chassis trends, while chemical manufacturers presented many novel marketing plans

*Publishers of *Automotive Industries*.

and organized for wider dissemination of an educational activity directed toward obtaining more intelligent use and sale of their products.

The combination of these activities provided, in the Joint Show, a logical setting for enthusiasm concerning the 1933 outlook in the maintenance field, and this was further substantiated by reports of substantial buying on the part of wholesalers.

Many manufacturers, on the closing day of the show, expressed the opinion that definite orders received from wholesalers during the week were greater than in any similar show during the depression. From the observer's viewpoint, the buying activities seemed to center around those manufacturers whose engineering and sales departments had achieved something of outstanding appeal. There were a larger number of these than in many previous shows, which probably accounted for the more generalized expressions of optimism heard.

In other words, the manufacturers who went into the show prepared to make a strong bid for business in 1933 found considerable encouragement, while those who had elected to "coast along" on present merchandise and sales plans received less encouragement.

Trade Show in 1933

The Motor & Equipment Manufacturers Association, at its regular convention, show week, decided to do everything in its power to open the way for another joint trade show in 1933 in spite of the fact that the National Standard Parts Assn., upon the insistent demands of its wholesaler membership, favored, in its convention, a show under the auspices of the N.S.P.A. alone.

The development of group activities within the M.E.M.A. was successfully launched in several group meetings throughout the week, some of the results of which were mentioned earlier in this article. The general membership of that association voted to adopt a uniform policy for return merchandise developed by that association recently. In a discussion of jobber catalog activities, the association decided that the costs of compiling jobbers' catalogs should be borne by the compiling house, by a jobbers' organization, or by an individual jobber, and were opposed to a recent activity which was characterized as "an attempt to pass this expense back to the manufacturers."

Throughout the M.E.M.A. convention sessions there was strong approval of the association's "manufacturers' only" set-up.

The necessity for greater cooperation among members of the parts and accessory divisions of the industry, if any progress is to be made in combating the increasing tendency to heap further taxes on the automobile, was discussed by David Beecroft, vice-president of the Bendix-Aviation Corp. and chairman of the M.E.M.A. Committee on Legislation.

Summer Convention

Consideration will be given to reviving the summer convention and to inviting jobber organizations to hold summer meetings at the same time in order that both manufacturers and jobbers can give full time to necessary contacts in the trade show when it is held.

Coincident with the staging of the trade show, the M.E.M.A. announced that early deliveries of parts and accessories to vehicle manufacturers for original equipment and a more than seasonal increase in shipments of accessories to wholesalers furnished the basis for a more optimistic outlook in October business of members. There was an increase of four points in the grand index of all shipments of the association members, and a similar increase in the index of original equipment shipments. Accessory shipments were up 19 points as compared with September.

The election of officers of the Motor & Equipment Manufacturers Assn. resulted in a unanimous vote of confidence and approval in the men who guided the association through its first year as a purely manufacturer group and their return to their respective responsibilities in 1933.

These included: president, George L. Brunner, Brunner Mfg. Co., Utica, N. Y.; vice-president, David Beecroft, Bendix Aviation Corp., New York; secretary, C. C. Secrist, Victor Mfg. & Gasket Co., Chicago; treasurer, C. H. Burr, SKF Industries, New York. Directors include F. G. Wacker, Automotive Maintenance Machinery Co., Chicago; Lothair Teetor, Perfect Circle Co., Hagerstown, Ind.; D. S. Brisbin, Columbus-McKinnon Chain Co., Tonawanda, N. Y.; C. C. Carlton, Motor Wheel Corp., Lansing; A. R. Ailes, Detroit Steel Products Co., Detroit; and C. P. Brewster, K-D Mfg. Co., Lancaster, Pa.

The National Standard Parts Association, in addition to setting the stage for a trade show under its own auspices in 1933, developed and presented, as a part of its convention contribution to the industry, several statistical studies of markets and of wholesaler costs and managerial problems.

It provided for a merchandise exchange plan operative among its wholesale members through which information on stocks of merchandise may be exchanged, thus effecting considerable economy for both manufacturers and wholesalers in the handling of some obsolete and semi-obsolete parts and other merchandise.

The decision of the N.S.P.A. to enlarge the board of directors to include nine manufacturers and nine jobbers; the reduction of the annual dues to $200 a year, and the creation of manufacturer and jobber boards of governors are physical expressions of the policy of that association in broadening its services to better serve all groups in its membership.

President Hancock

W. G. Hancock, vice-president of the McCord Radiator & Mfg. Co., was advanced to presidency. O. M. Anderson, of the Northern Automotive Supply Co., Bay City, was elected senior vice-president; and D. W. Rodger, Federal Mogul Corp., Detroit, was elected junior vice-president.

In increasing the number of directors from 12 to 18 and providing for those places on the board in which directors' terms expired, the following manufacturers were elected: D. W. Rodger, Federal Mogul Corp., Detroit; W. J. Eattrein, Watervliet Tool Co., Inc., Albany; H. M. Smith, Manley Mfg. Co., York; Burke Patterson, Thompson Products, Inc., Cleveland; and J. A. Wheatley, Jr., Thermoid Rubber Co., Trenton.

The outstanding development of the M.E.W.A. convention was the announcement by E. T. Satchell, president, and an Allentown, Pa., jobber that, as the result of a conference between Alfred P. Sloane and himself, committees representing the General Motors Corp. have held a series of conferences concerning the merchandising of equipment and after-market products in which the interests of the General Motors Corp. and the wholesalers were thought to be at times in conflict.

As the first result of these conferences, President

(*Turn to page 773, please*)

JUST AMONG OURSELVES

Sam Miles a Living Memory—

AS automobile show time approaches again, thoughts of Sam Miles inevitably rise to the surface of one's mind. Scores of men throughout the industry who knew and loved him will be thinking kindly thoughts of the founder of the automobile shows as they pause in their preparations for the 1933 exhibits to reminisce, through the clouds of a contemplative smoke, about their contacts with him through the years.

To think of Sam Miles without his ever present cigar is truly difficult. Large, long black ones he liked. He hated to be without a smoke. The last time we ever saw him, in fact, was one day last March as we sat chatting with Alfred Reeves in the latter's office. As we sat down, the genial general manager reached into his desk drawer and whipped out—as is his wont—a box of high priced "guest" cigars and, with a flourish, opened the box to offer us a smoke.

As he did so a blank look suddenly bespread his countenance. Instead of cigars, there reposed in the box only a small torn slip of paper. He picked it up, read the words on the paper, laughed aloud and passed the slip over to me. It contained the simple message:

"Thanks, Al." And was signed "Sam."

A few moments later the veteran show manager came into the room. We accused him of having beaten us out of a smoke—an accusation which he immediately rendered untrue. All three joked a few minutes about the incident. Sam Miles left the room, smiling—active—cheerful.

And that's how we shall always remember him.

Still to Be Paid for

OUR research department has just presented us with the interesting information—said to be from authentic sources—that about $206,250,000 still remains to be paid in time payments on automobiles already in use which were new when purchased by present owners; and that approximately $157,560,000 remains to be paid on cars which were used when bought by present owners.

A total of about $363,830,000 is due, in other words, on cars already in use.

Which isn't so big as it sounds when we stop to figure out that the average amount still owing on the average new car bought on time is only $275 and on used cars $120.

The Will of the Age

OBJECTIONS to Mr. Kinter's reasoning will doubtless proclaim his expression as a pious hope rather than a practical assurance. And to some extent they will be right. But we continue to feel that the only real hope for the future lies in striving to bring to reality that same pious hope. We aren't going to turn backward toward a non-machine age. Individuals may seek bucolic solitude and successfully "get back to nature." Society in America probably won't. Our people are inextricably woven into the cloth of a type of living which involves as necessities uses of those things which machinery makes possible.

Certainly the future is not clear. But the dangers of going forward are far less potent than the impossibilities of trying to turn backward.

Machine Development Makes New Jobs

S. M. KINTNER, vice-president, Westinghouse Electric & Manufacturing Co., struck back at the critics of modern machine development the other day with the statement that "Technical progress is still hard at work creating good new jobs by the million for tomorrod, not only in new lines, but in old ones."

Answering those who blame technological unemployment for our present plight, he said: "The reequipping of the country with modern machinery will alone go far to make prosperity. Still greater possibilities lie in the now undreamed of arts, businesses and industries that this fairy of technical progress will almost certainly produce from her magic box. . . . So many prophecies of the past that have sounded a warning of a finished world have proven so foolish when viewed in the light of subsequent events, that it must take a brave, and I might add, foolish man to record his opinion to that effect as a result of our present troubles. . .

—N.G.S.

Larger, More Powerful Chevrolet Adopts

Brief Data

Sport roadster $485 (unchanged)
Business coupe ..... 495 (up $5)
Coach ..... $515 (up $20)
Phaeton ... 515 (up $20)
Sport coupe. 535 (unchanged)
Sedan ..... $565 (down $25)
Cabriolet ..... 565 (down $30)

Unless otherwise indicated specifications remain as formerly:

Wheelbase.....110 in.	Displacement .....206.8 cu. in.	Spark control.....automatic (Centrifugal and vacuum)
Side rail depth..... 5¼ in.	Engine stroke ..... 4 in.	Max. advance, automatic ..... 46 deg.
Tail pipe diameter..... 1¾ in.	Max. hp. .....65 at 2800	..additional (vacuum)..12 deg.
Rear spring rates:	Max. torque.....146 lb.—ft. at .....1000-1800 rpm.	Fan-blade angle.....75°-150°
roadster ..... 105 lb.	Crankshaft weight....63-½ lb.	Manifold heat control thermost.
sedan & coach..... 130 lb.	Crankpin diam. .....2-⅛ in.	Transmission ratios, low.. 3.02
Brake flange.....Pressed steel	Effective length...1-17/64 in.	second 1.70
Differential case.....1 piece	Center main bearg. length .....1-⅞ in.	reverse 3.40
Teeth in ring gear.....37	Connecting rod length..7-½ in.	Fuel-tank capacity .... 14 gal.
in pinion 9	Oil ring width.....3/16 in.	Steering ratio ..... 14 to one
Ratio 4.111	Spark plug size.....14 mm.	Stop lamp, c.p. ..... 3 c. p.
Rear-pinion bearing..... N.D.	gap ..... .030 in.	Ignition lock .....coil
Wheel bearing....Hyatt roller	Valve springs, pressure	
Brake-drum diam. .... 12 in.	closed ..... 57 lb.	
Lining width ..... 1¾ in.	open ..... 95 lb.	
Length lining wheel...18⅜ in.		

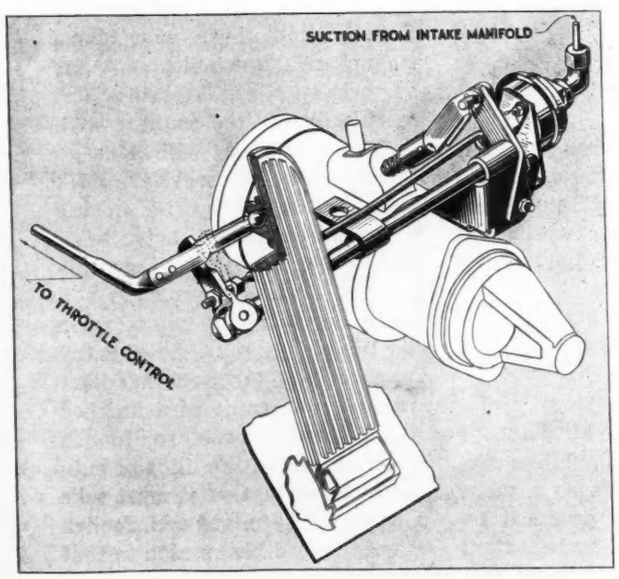
Six tube super-heterodyne radio.
New bumpers.
Rubber tire cover or metal tire cover.

Windshield defroster.
Wireless cigar lighter.
License plate frame unit.
Eagle radiator cap of new design.

Rear view mirror glare shield.
Spring covers.
Improved trunk rack.
Improved luggage carriers.

by Athel F. Denham

JUDGING from a preliminary announcement issued by the Chevrolet Motor Co., size and beauty will be the major sales points of the 1933 Chevrolet Six. The wheelbase has been increased to 110 in. and the adoption of a double-drop frame has reduced the over-all height.



Automatic accelerator-starter control. The starter linkage engaging in a slot on the accelerator rod is pulled out of engagement by the vacuum cylinder at the right when the engine starts

The striking new bodies are characterized by a deep and slightly sloping V-shaped radiator having an integral chrome-plated grille, and a shell finished to match the hood. There are new double-braced fenders with deep flanges and skirts to conceal the chassis. Windshields have a greater slope than formerly. Door-type hood louvres slope parallel to the radiator, and are located at the rear of the hood only, increasing the effect of length ahead of the cowl.

Rear body panels have a double curvature, sweeping backwards at the bottom. Here the line is continued by the rear-deck cover which blends into the fenders, following the body lines rather than the frame. Hoods have single central control handles as formerly, and continuous top hinges. Other details worth mentioning include reinforced hood side panels, a concealed license bracket on the front spring horn, reflex lenses in tail and stop lamps, new head and cowl lamps, a new radiator cap, a neater rear wheel carrier, and a larger and screened cowl ventilator.

Bodies incorporate the new Fisher no-draft ventilation system. Windshields are permanently locked in place, and front-door windows are in two parts, the rear half raising and lowering in the conventional manner, and the front half being hinged vertically and adjustable by a separate control handle to any position desired. The same type ventilator is formed by the front half of the rear window in the four-door sedan, the rear half of which is fixed. Shatterproof glass is used in all draft deflectors and in the windshield.

All instruments on the new recessed instrument

Advanced Styling

Detail of rear of a 1933 Chevrolet sedan, showing the new rear fenders and double curvature back panel

panel are of the pointer type. The ignition lock is of the coil type. There are fewer controls than formerly, a thermostatic heat control eliminating the former manual control, and a new vacuum spark control eliminating the button for the latter. There is a removable button on the panel for installation of an electrical accessory, such as a cigar lighter. The adoption of an automatic starter has eliminated a starter button or starter pedal. With this device, pressing down on the accelerator starts the engine. As soon as the engine fires and vacuum builds up in the manifold, a vaccum cylinder disengages the starter linkage and the accelerator then operates the throttle in the conventional manner. If the engine stalls, while freewheeling for instance, failure of the manifold vacuum causes a reengagement of the starter linkage, so that the next time the accelerator is depressed the engine is started again. Thus the device, in connection with freewheeling, is virtually an automatic starter. The design of the linkage is such that the position of the accelerator at wide open throttle prevents engagement of the starter linkage, should manifold vacuum under such conditions drop to a low point.

Similarly, the vacuum spark control previously mentioned reduces conscious effort on the part of the driver to obtain maximum performance together with smoothness of operation. In addition to the automatic spark advance, governed by engine speed, the manifold or vacuum control retards the spark under full-load conditions to prevent knock, etc., and advances it at lower throttle openings (higher intake vacuum) throughout the speed range. This results in better economy at partial throttle. The mechanism becomes effective at speeds in excess of 12 m.p.h., and at wide open throttle retards the spark 12 deg. throughout the speed range.

Correct spark control certainly has been given attention by Chevrolet engineers this year, for there is also another device on the distributor, called the "octane selector," by which the timing of the spark range can be quickly adjusted to suit variations in fuel conditions. This is in the form of a knurled knob, which, when screwed inward or outward, changes the position of the distributor advance arm in relation to the mounting bracket. An adjustment of 10 deg. either way from "normal" is thereby possible. The bracket is graduated in degrees of flywheel rotation. The most important use of this device is in connection with a change in fuel. When high anti-knock rating fuels are used, the spark setting can be advanced to obtain improved economy at part throttle. In some cases, depending on the fuel cost, this economy gain may more than offset the increased fuel cost. Similarly, if low knock-rating fuels are used, the setting can be retarded, and while some economy will be sacrificed balanced by the lower fuel cost), the engine can be operated thereby without spark knock. Standard setting is for a fuel of approximately 65-58 octane rating. Varying engine

1933 Chevrolet
Four-door sedan

conditions, as brought about by carbon accumulation, etc., and varying climatic conditions also can be compensated for by this device. A change from full advance to full retard corresponds to a difference in gasoline mileage of about three per gallon.

Increased smoothness in the operation of the engine has been brought about by a new system of engine mounting, referred to as "sta-namic" balance, coined from the static and dynamic engine forces which the mounting is designed to absorb. There are four mounting points, one at the front below the harmonic balancer, one at the rear below the transmission, and one on each side, near the center of the engine. A line connecting the two lateral points of support makes an angle of 45 deg. with the axis and passes through the center of gravity of the engine. These side mountings virtually take the entire load of the engine and permit a limited amount of rocking motion. Front and rear mountings are mainly "stabilizers" and are designed to take such load as is put on them by acceleration or deceleration of the car, which cause the engine to dip down at the rear and front respectively.

The mountings also are capable of flexing horizontally and permit a limited rocking motion about a vertical axis in case some out-of-balance condition develops a vibration in this plane at high speeds. Closer tolerances are now specified on the balance of rods, shafts, flywheel, etc.

The performance has been stepped up by various improvements in design and by an increase of ¼ in. in the length of stroke. Maximum power is now developed at somewhat lower speed, and the maximum torque has been increased over 12 per cent. The previously mentioned refinements in the spark control contribute, of course, to the improved performance.

Intake manifold arms are inclined to prevent wet gas from flowing to the rear cylinders when climbing hills, and a flat depressed area has been provided for the collection of wet fuel just above the intake heater. The center section of the manifold is of D-form, with the flat at the bottom, to provide "corners" in which any wet fuel can collect for equal distribution to all cylinders. The sleeve in the manifold riser extends farther down into the manifold, resulting in better distribution when taken in connection with the flattened center port.

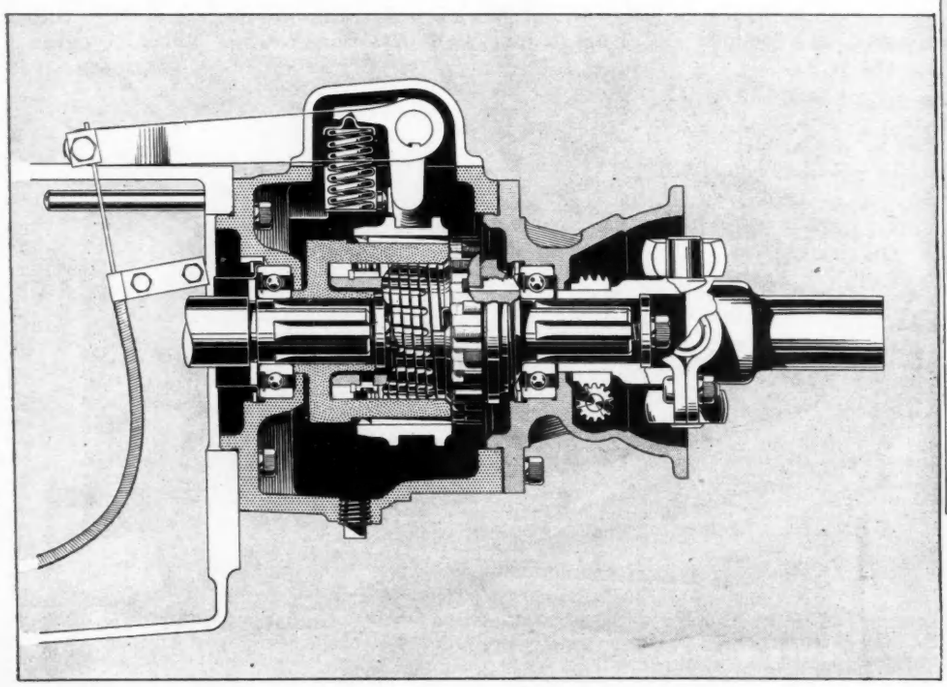
For better lubrication of the valve mechanism on top of the engine, the overflow pipe on the rocker-arm shaft is now provided with an overhead loop to provide a head of oil. A vent hole at the highest point of the loop prevents a siphoning action. This arrangement is said to also prevent overoiling at high engine speeds.

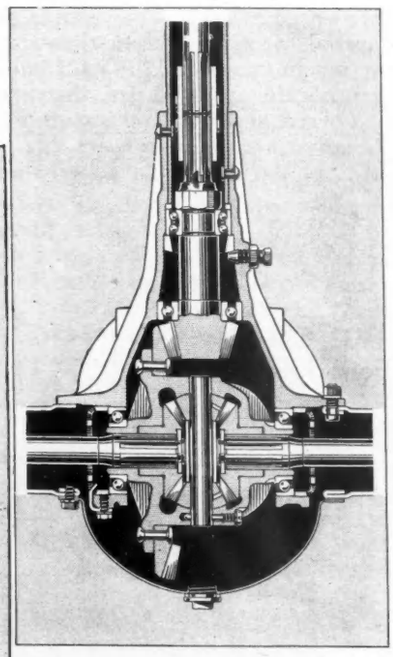
Further engine changes include the following: A steel-backed babbitt bushing for camshaft center bearing—A heavier crankshaft more fully counterweighted—Thicker crank arms, space for which is gained by a ⅛-in reduction in lengths of center main and crankpin bearings—Crankpin diameters increased ⅛ in. —Heavier flywheel web for better dissipation of clutch heat and flywheel rim lightened proportionally—Harmonic balancer made of cast iron instead of malleable and provided with a greater number of lighter spring leaves—tuned to 135-150 cycles per second—Straightening operations on connecting rods between boring operations eliminated to prevent subsequent distortion—Pistons now all held within the same weight limits—Wider oil-control rings (3/16-in.) and increased number of drain holes—Ribs on cylinder head to reduce deflection under pressure on rocker arm—Cylinder heads counterbored for spark-plug seats to locate spark points in combustion chamber proper instead of in pocket—Hollow copper gaskets under plugs for better seal and heat conduction—Smaller spark plugs (14-mm.) with wider gap (0.030 in.)—Narrower valve seats—Rocker more nearly at right angles to valve stem to reduce side thrust on latter—Rocker arm bushing cast of solid branze—Valve-spring pressure increased—Thermostatic control of heat for incoming charge, with thermostat balanced by coil spring to relieve it of stresses in normal (heat-off) position—Combined air cleaner and silencer improved so as to eliminate air hisses as well as power roar—Improved oil seal between crankcase and pan by stamping beads on flange and using wider and thicker gasket—Return of oil to pan facilitated to reduce leakage around top of oil-pump-distributor drive shaft—More accessible oil gage rod—Improved lubrication for water-pump bearing, and a new fan-blade setting.

Only minor changes are found in the clutch, including a friction lining, with higher coefficient, higher spring pressure, an increase in clutch disk warpage, and the adoption of a stamped instead of forged clutch fork.

Helical constant-mesh gears were adopted the latter part of 1932 in the transmission, for countershaft-

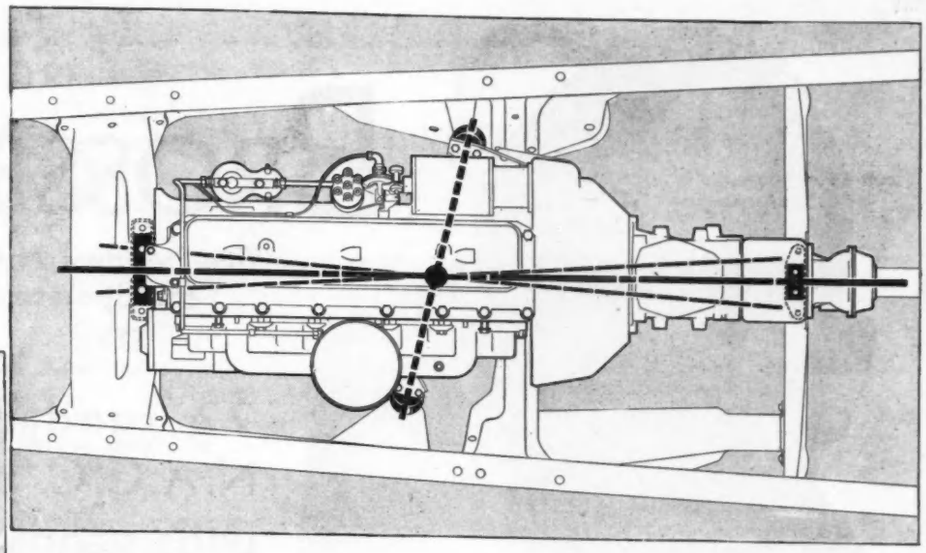
(Right) Sectional view of the rear axle center section

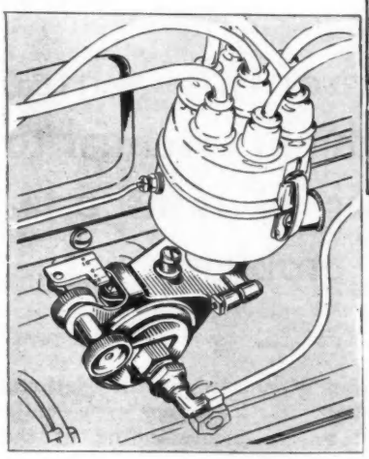




(Left) Section through the redesigned freewheeling unit

(Right) Layout of the new Chevrolet engine mounting designed to provide a certain freedom of oscillating motion about both horizontal and vertical axes





(Left) The spark-timing is controlled by a centrifugal governor and vacuum cylinder and can be manually adjusted for a change in fuel characteristics

drive and second-speed quietness. Synchronizers have been improved to facilitate manufacture, reduced in diameter, and reduced in weight. Transmission ratios are changed to give higher speeds in both low and second.

The freewheeling unit, which is retained for 1933, has been completely redesigned. In the 1932 L.G.S. type, two opposed cups were used, and the expanding spring was used to transmit torque from the front cup to the rear. For 1933 there is a single cup. An interesting feature of this unit is that it is completely interchangeable with the 1932 design in the freewheel housing.

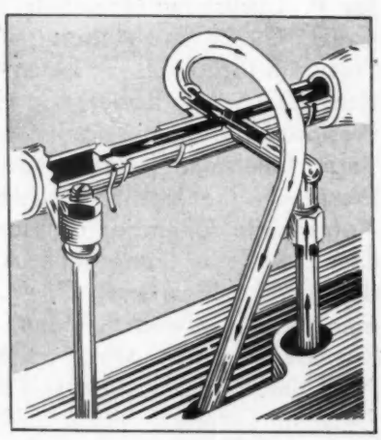
Before proceeding to the remainder of the chassis, attention should be called to the new pedal mountings. Both clutch and brake pedals are mounted on the frame—a sub-frame to be exact—to prevent transfer of engine movement. The outer end of the pedal shaft is piloted in the web of the side rail. The shift lever, while mounted on the transmission, is actually piloted in a bracket on the toe-boards, which, together with clearance provision at the transmission end, prevents movement of the shift lever in connection with the larger engine and transmission movements in their new mountings. There is a rubber floor seal at the transmission cover.

An interesting new rear axle has been developed, its major feature being that its shafts have flanges of considerable diameter forged on their outer ends, to which the wheels are bolted directly. Thus the conventional wheel hub is eliminated and the unsprung weight proportionally reduced. A Hyatt roller bearing is provided at the wheel end. Side thrust is taken on C-washers at the inner ends of the shafts and a thrust plug between them. The design brings the wheel bearing closer to the center plane of the wheel and thus reduces the moment on the axle shafts.

The center housing is larger and has integral reenforcements. One-piece differential cases are stronger than formerly. There is a larger differential pinion bearing, and a larger ring gear with fewer teeth, although the final drive ratio is not materially altered. Brake drum support flanges are of pressed steel welded to the housing ends. Pinion shaft bearing spacers are eliminated by machining the pinion shaft to stepped diameters.

With the new axle, the wheel and axle shaft can be removed as a unit, after removing the inspection cover, and the differential pinion and spacer through the large opening in the side of the differential case. The shafts can then be pushed inwards (ample clearance at the wheel bearing) and the C-washers removed. The shafts can then be pulled out.

The frame for the 1933 Chevrolet is entirely new. It is longer and has a double kick-up of $\frac{3}{8}$ in. over the front and $5\frac{5}{8}$ in. over the rear axle. A sub-frame member has been added on each side near the dash, to increase the stiffness of that portion of the frame which supports the engine. Side-rail sections are $\frac{1}{4}$-in. deeper. A depressed panel is stamped into the web of the side rail at the rear kick-up, to add to its stiffness. Rear-spring rear hangers are now drop-forged, and the spring is directly below the side rail. A guard in front of the battery hanger protects the battery against flying stones. Other chassis changes are described on page 787 of this issue of *Automotive Industries*.



This overhead elbow at the rocker arm shaft insures better lubrication by providing a head of oil

BROSSEAU Tells

(Vice-President, N.A.C.C., and Spokesman)

22 fundamentals which N.A.C.C. thinks essential to understanding of transportation problem

In a presentation made at Empire State Building on Dec. 7, representative committee of N.A.C.C. filed with National Transportation Committee a 65-page memorandum presenting place of motor vehicle in the national transportation scheme.

Motor group accepted definitely the principle that motor vehicles should pay fair share of highway cost and be regulated for protection of life, limb and property on the highways. The committee:

A. J. Brosseau, President (Mack); Walter P. Chrysler, President (Chrysler); E. L. Cord, Chairman (Auburn); A. R. Erskine, President (Studebaker); Byron C. Foy, President (De Soto); Robert C. Graham, Vice-President (Graham-Paige); Charles D. Hastings, Chairman (Hupp); Alvan Macauley, President (Packard); President, National Automobile Chamber of Commerce; William E. Metzger (Federal); L. A. Miller, President (Willys-Overland); C. W. Nash, Chairman (Nash); Alfred P. Sloan, Jr., President (General Motors); Alfred H. Swayne, Vice-President (General Motors); T. R. Dahl, Vice-President (White).

THE 22 fundamentals considered by the National Automobile Chamber of Commerce representatives as essential to an understanding of the transportation problem are:

Effect of Highway Transport on Rail Freight

1. Sub-normal shipping by industry, mining and agriculture is the principal cause of low freight revenues of railroads.

2. The most stringent restrictions likely to be suggested for motor services whose business and rates might be adjudged subject to public regulation would bring no marked increase in rail net freight revenues.

3. It will require a study of net railroad earnings, rather than tonnage, and at a time when agriculture, mines and industry are producing in normal volume to get a true picture of railroad conditions as affected by the so-called motor competition.

4. No material approach to the real difficulties of the railroad industry can be found in "losses" to motor services since the major part of those services is for short distances that would produce small line haul earnings and disproportionate terminal expenses.

Should Motor Vehicles Be "Regulated"?

5. No increase in public expenditures for regulatory bureaus should be considered unless supported by the most urgent public necessity and convincing evidence of tangible result.

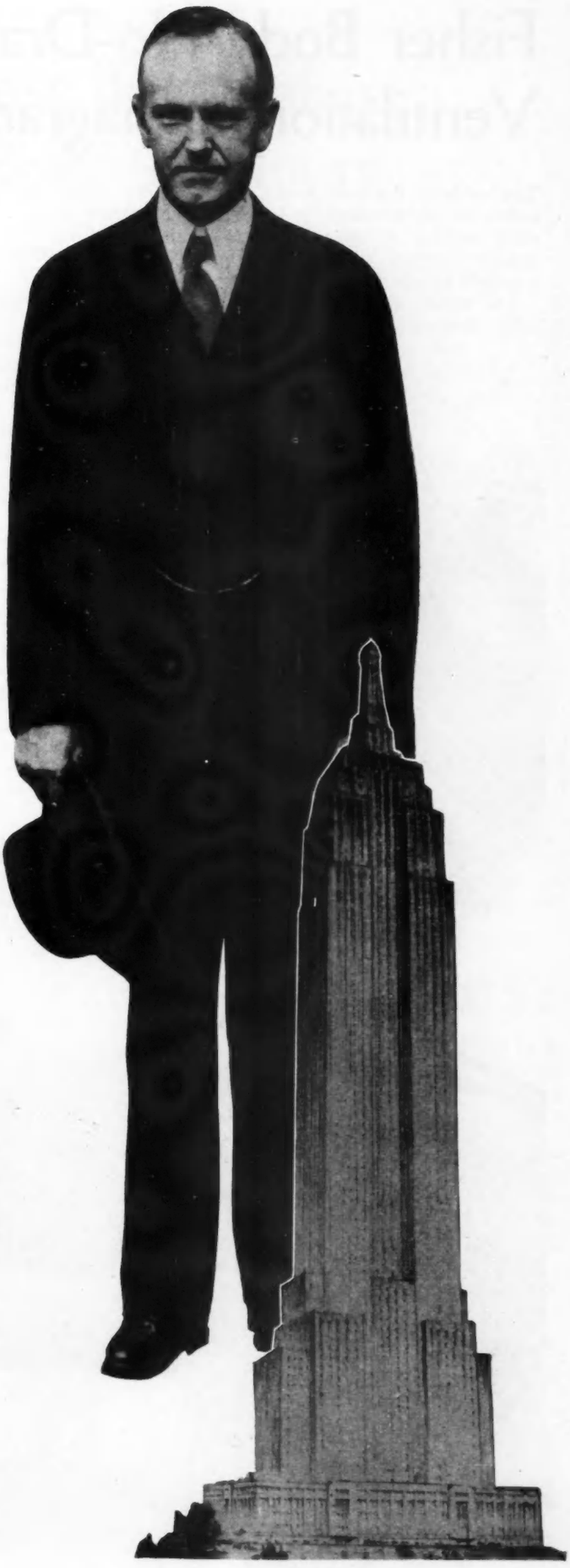
6. The motor vehicle is a major and necessary addition to the transportation service of the United States. It is not a competitor of the railroads in the sense of furnishing identical services.

7. Generally its field of service is distinct from the rail-head to rail-head service of the railroads; it is individual and flexible in character, operating at any time from door to door.

8. The public is primarily interested in police regulation of motor vehicles such as registration, sizes, weights, speeds and conditions of operation; these features are within the control of each state, are being cared for according to local conditions and are being constantly perfected.

Is COOLIDGE

(Chairman, National Transportation Committee)



9. The uniform standards for dimensional control of motor vehicle operation set forth by the United States Bureau of Public Roads and the American Association of State Highway Officials should be approved by all state Legislatures in the interest of efficient transportation.

10. Any undue restrictions on contract or common carrier trucks would create an advantage to competing business served by its own trucks.

11. Regulation of railroads was founded on monopoly and was not at once adopted in its present form; any regulatory suggestion for motor transport should be approached slowly and carefully lest public interest suffer.

12. Any restrictions on motor transport founded only on an attempt to make motor services equal in cost the dissimilar rail-head to rail-head services would be unsound and ultimately futile; it would repress full development of motor transportation and only operate to the eventual disadvantage of the shipping public, the consumers, and the railroads as well.

13. Motor vehicle owners today are paying their fair share of road costs through special taxes volunteered for highway building. In many cases such taxes have been raised to excessive amounts. These taxes generally are fairly divided as between different types of vehicles.

14. The public is entitled to, and will insist on, the fullest possible use of its highways, having met the requirements of fair taxation and reasonable operation.

Coordination

15. Coordination of rail and motor services can make sound progress only on an economic basis.

16. The use of rails has been retired permanently from certain short-haul services heretofore termed unremunerative by railroad authorities; and therefore to the net ultimate advantage of railroads.

17. If motor trucks have ventured into services of seemingly too long distance, the practice cannot continue if economically unsound and subject to highway costs equal to other highway users and providing also that railway management is fully alert and not unduly restricted.

18. Time and experience only will determine the extent to which some of these longer services may be re-directed to railroads. In fact, the tonnage which the motor vehicle has produced, and the field it covers, indicate the possibility of large compensations for the older carriers both in revenue and out-of-pocket loss from unprofitable operations.

19. Transportation policies of the future will require a recognition by the railroads and the public that motor vehicles should be used in many places and in many operations in place of existing railroad services.

(*Turn to page 773, please*)

Fisher Body No-Draft Ventilation In Diagram

The cutaway diagram shown in the centre shows the mechanism of the windows in the Fisher No-Draft system. The main portion of the window (1) raises and lowers. The smaller forward section (2) is pivoted top and bottom with a control handle lower on the door. (3)

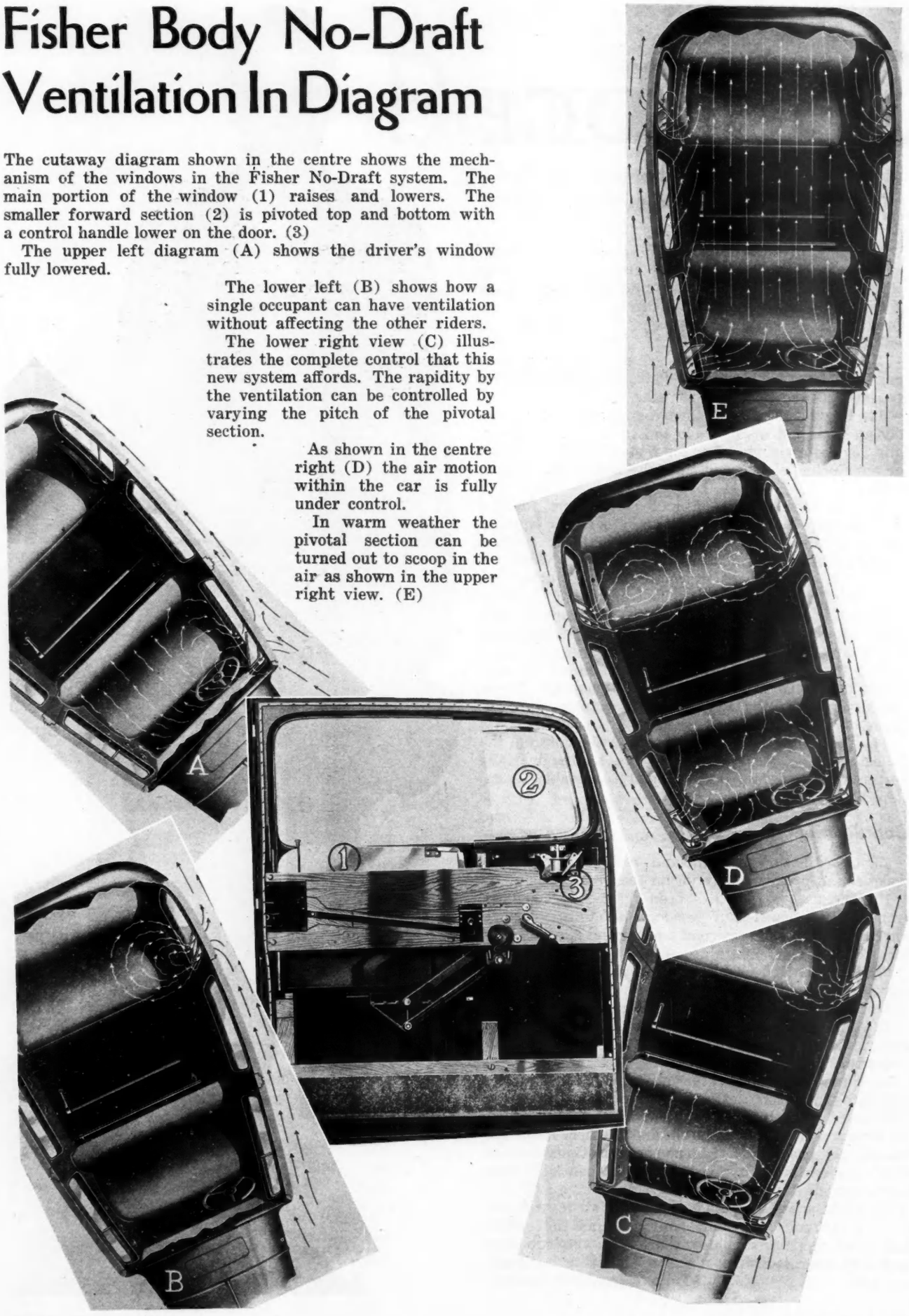
The upper left diagram (A) shows the driver's window fully lowered.

The lower left (B) shows how a single occupant can have ventilation without affecting the other riders.

The lower right view (C) illustrates the complete control that this new system affords. The rapidity by the ventilation can be controlled by varying the pitch of the pivotal section.

As shown in the centre right (D) the air motion within the car is fully under control.

In warm weather the pivotal section can be turned out to scoop in the air as shown in the upper right view. (E)



Cummins Diesel Test Bus Makes Coast-to-Coast Trip in 91 Hours

365 gallons of fuel oil were used over a route of 3220 miles at a cost of $21.90

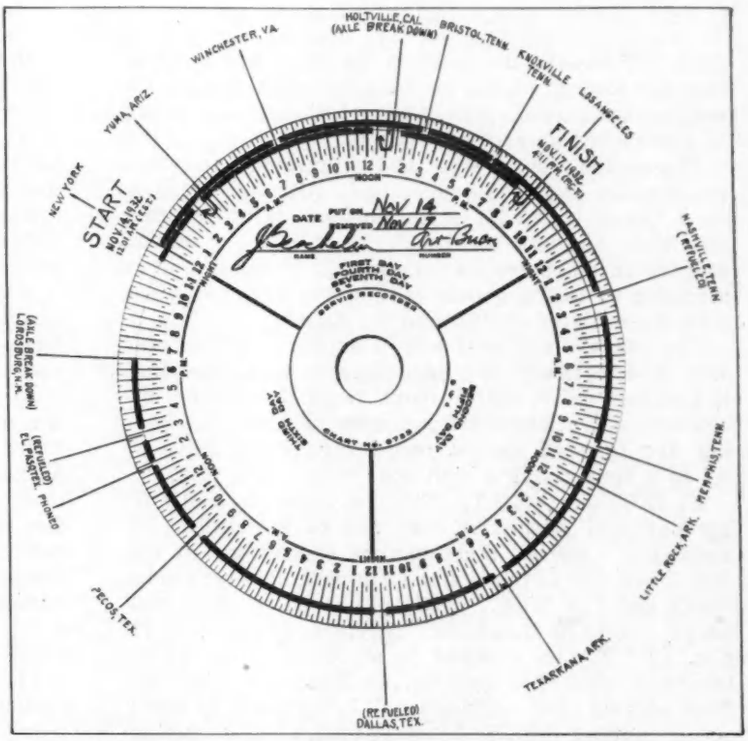
by Joseph Geschelin

HURTLING across the continent at express train speed, a ten and a half-ton vehicle powered by a six-cylinder Diesel engine traveled from New York City to Los Angeles, Cal., in 91 hours elapsed time. $21.90 for fuel oil sufficed to take it clear across the long stretch of mountains and desert on the Southern Route. The entire trip was made without a fan in the cooling system—without an engine mishap. In fact the home stretch of hot desert sands through California was made at a sustained speed of sixty miles per hour.

If you've listened to the radio the last couple of Sundays, you will recognize this as the high spot of the record-breaking transcontinental run made in a 32-passenger bus equipped with a model H Cummins Diesel engine, 4⅞x6-6 cyl. rated at 125 hp. at 1800 rpm. Your scribe (lucky guy) was aboard as official technical observer representing the Chilton Co.

They said it was an endurance run just to show the automobile world and the transportation industry what the new Cummins engine could do. But they didn't reckon with Dave Evans, veteran race car driver and born to the wheel, and C. L. Cummins who divided the driving honors.

No indeed! The boys discovered that they could wind her up to 65 miles per hour—and they did. No wonder we were able to stay awake for 96 hours and



Indicator car used on the 3220-mile run, showing 14 stops made during the trip

This bus, weighing more than 10 tons gross, powered with a Cummins 6-cyl., 125-hp. Diesel, made the trip

Left to right: Dave Evans, C. L. Cummins, president, Cummins Engine Co.; Art Buck, Joseph Geschelin and "Ted" Kelly—the "crew"

faithfully observe the speedometer, the hairpin curves that she took at 45, the glorious mountain trails with nothing but jagged rocks at their foot, an exact record of fuel picked up at three stations.

The engine was governed at 1800 rpm. and answered the throttle like a passenger car. Although we took on a fan at Nashville in anticipation of bad heating conditions through the hundreds of miles of desert country ahead it was not necessary to install it, and as a matter of fact a goodly part of the trip was made with the radiator shutters partly closed.

The bus was equipped with a double-reduction rear axle of 4.96 ratio. We had cause to wish later that it had had drive shafts about twice the regular diameter. A truck type transmission was installed, having five forward speeds, one being an overdrive of 0.7 to 1, thus giving a high gear ratio of 3.5 to 1.

At 12.01 p.m. (E.S.T.) Nov. 14, amid the tootle of her powerful locomotive horn and to the clicking of newspaper cameras, the Cummins expedition left the New York side of the Holland Tunnel bound for points South and Far West. Little did we know what was ahead. More of that later. Anyhow, at exactly 4.11 p.m. (P.C.T.) we checked in at the Western Union telegraph office Los Angeles, on Thursday, Nov. 17. Total elapsed time certified by W.U. 91 hours 10 min.; actual running time, 78 hours 10 min., after deducting stops to pick up dry lunch, fuel oil, and axle breakdown.

In the first seven hours we had touched five states. Within three days we were only seven hundred miles from our goal—almost twenty-five hours ahead of the running schedule Mr. Cummins had so carefully worked out. Then came Lordsburg, N. M. (it might have been Waterloo). We had just checked in at the W.U. station, were about to swing up to Phoenix and the home trail. The road led across the railroad tracks —and there it ended. Cummins at the wheel, he shifts gears, gives her the gun, and thar she stands right on the tracks, everything shipshape except the axle.

The recorder (by Servis) tells the story, shows how we lost about six hours working out our salvation. How it was done is another story. But we did it—that is the Cummins engine did.

Throughout the long trek over hill and dale, over mountain ranges, across hundreds of miles of desolate desert country, the engine worked like a charm. It ticked off the willing miles at top speed and answered the accelerator at every turn. Let no one dispute PERFORMANCE at least on this run. It took grades like an antelope in overdrive with a total gear reduction of 3.5 to 1.

Lugging ability? This engine pulled down to 650 rpm. by the tachometer on the instrument board and LUGGED until a shift into gear. Then it took anything (and we climbed 4600 ft. in several places) at speeds from 15 mph. up.

Diesel knock and smoke? Well we didn't hear any knocks whether on level stretches at idling, or when climbing grueling grades. Starts like a top at the first kick of the 12-volt starter. Some color in the tail pipe at idling but seemed to be mighty clean when under way. In fact, the exhaust should be clean because the injection of fuel is controlled and accurately metered according to the demand of the throttle (see principle of operation).

Now for the figures that fired our enthusiasm and kindled the interest of the transportation men out where distances are measured in hundreds of miles, and anything under a mile elevation is just an anthill.

According to our log the speedometer read 828 at the start—4048 at the finish, a total mileage of 3220. This is the figure we shall use in our computations although the crew felt that the actual mileage was at least 100 miles more. The difference may lie in the fact that the speedometer was certified at speeds much below the actual operating range on the trip. For example, the mileage on this route as calculated by the Automobile Club of So. California is 3261; and we surely covered 50 miles of detours in Tennessee, Virginia, and Texas.

The weight of the bus on scales in Los Angeles was 19,500 lb. Estimated total weight including five passengers, luggage, fuel oil, etc., 21,550 lb.

The bus is equipped with two fuel tanks, each of 80-gal. capacity, a total of 160 gal. Your scribe was the fuel oil register of the party and stayed awake nights to be sure that no extra fuel was added by coyotes, jackrabbits, or oil derricks. Our log shows the following: "At Nashville, the first stop for fuel, in the wee hours of the night, took on 117 gal. from 50 gal. drums which were there in readiness. This was a furnace oil of 28-30 gravity Baumé.

"At Dallas, Texas, added 91 gal. of furnace oil of 38-40 gravity Baumé.

"The last fuel stop at El Paso, Texas, required only 77 gal. This material was 32-34 gravity Baumé, 34-37 Saybolt viscosity."

Upon arrival at Los Angeles we checked the fuel situation. An estimate based upon the gage readings of the two tanks showed that we had come in with about 80 gallons to spare, thus yielding the following grand total:

N. Y.	160 gal.
Nashville	117 gal.
Dallas	91 gal.
El Paso	77 gal.
	445 gal.
Residue	80 gal.
Total used	365 gal.

Price of fuel naturally is variable throughout the country, and just for the sake of comparison we took

the figure of six cents per gal. as a fair price, although it is probably a little high. Some idea of the present range in price may be gained from current quotations. Actually, in California the present price for the relatively low grade of fuel required is four cents per gal. retail in 50-gal. drums, while one large fleet operator showed us a contract calling for delivery of fuel of required specifications at 3½ cents per gal.

On the basis of six cents per gallon the cost of fuel for the whole trip across the continent was $21.90, or three-quarters of a cent per mile.

Fuel economy averaged for the entire run is obtained by dividing 3220 by 365, which gives 8.2 miles to the gallon. Almost passenger car performance.

Consider elapsed time. If we use the figure of 91 hr. 10 min., the average speed comes to 35.4 mph. Deduct all time out for stops, totaling about 12 hours by the Servis card, we have 78 hr. as actual running time, or a real average speed of 41.3 mph. On the other hand if we assume that all stops except breakdown due to the condition of the vehicle are essential in normal running, the average elapsed speed becomes 38.8 mph.

Looking at this performance another way, we find that the economy achieved was 92 ton miles per gallon. Truly remarkable when it is recalled that the vehicle just rolled along at 65 mph. against tremendous wind resistance. Add to this the effect of head and cross winds which in one stretch pulled down the speed to 50 mph. with the throttle wide open.

The engine was remarkably clean at the end of the trip indicating freedom from oil leakage and losses through joints and gaskets. This is borne out by the experience of two large operations in San Francisco which we had the good fortune to scrutinize personally. The actual oil shrinkage for the entire trip was 5½ qt. However, crankcase oil was dumped twice, once because viscosity was too low for the prevailing atmospheric conditions, the other time because the bus was tied up anyway and they thought it would be a good idea to run with fresh oil.

Much has been said about the thermal efficiency of the Diesel engine. If the Diesel saves on fuel it does so only because it converts nearly all your fuel dollars or cents into useful work, and by the same token wastes but little of the fuel dollar in heating up the radiator or the floorboards. Our trusty log, now much the worse for wear and tear, shows the following comments on this score noted as we pushed along:

"Monday, Nov. 14, climbing elevation of 2750 ft., speed 15 mph. with engine at 1800 rpm. under governor control. No fan, radiator shutters partly closed, water temperature 200 deg. F. at crest, drops to 160 deg. F. when level stretch is reached.

"Outside temperature toward evening about 50 deg. F., shutters closed, water and oil at 150 deg. F. Heating the bus becomes a problem because of the low temperature of the radiator water. We take to blankets.

"Wednesday, Nov. 16. A stretch of desert about 700 miles long through the purple sage country of Texas. Temperature of radiator water about 160 deg. without fan although the radiator shutters have been removed. Up moderate grades in this region and New Mexico at 45 mph. in overdrive (total reduction 3½ to 1) with water temperature about 18 deg. F.

"Thursday, Nov. 17. Home stretch up the sand desert of So. California to the Imperial Valley. Temperature in the bus kites to 90 deg. F. Must be pretty hot outside. Water temperature without fan stays at about 160 deg. F. on levels. Water goes up to 200 deg. F. on some of the grades but comes right down when the level stretch is reached.

"Lugging ability well demonstrated by means of the engine tachometer. When climbing up steep grades, the engine takes it in overdrive and pulls down to 650-700 rpm. before it labors. Moreover, it recovers well and accelerates to speed in overdrive if the crest is reached before shifting gear."

The Servis recorder (key held in escrow by yours truly) gave a faithful picture of entire trip including stops and their duration. It proved invaluable when the time came for reckoning the actual running time and deducting honestly the loss of time due to axle breakdown, refueling, etc.

All in all the Cummins Diesel gave a good account of itself. Not only did it take everything, mountains, desert detours, and whatnot, but it made the home stretch from Holtville to Los Angeles through a hot, dry, sandy desert at a speed of 65 mph. and an average speed of 50 mph. for a stretch of about 250 miles.

Trade Show Reveals Optimistic Maintenance Outlook for 1933

(*Continued from page 762*)

Satchell announced his confidence of future cooperation by the General Motors Corp. with recognized wholesalers in keeping distribution activities on shop equipment and competitive products on a fair and constructive basis. In arriving at this decision, Mr. Satchell pointed out that the General Motors Corp. had not been directly charged with nor had they admitted any unfairness in the application of their after-market distribution policies in the past. The important development, however, was the establishment of a cooperative interest in the prevention of any possible misunderstandings in the future.

In this association, also, men who had handled the affairs of the jobber group in the first year of its existence as a separate organization were rewarded by reelection. These include president, E. T. Satchell, Allentown, and vice-president, W. R. Crowe, Little Rock, Ark. E. R. Seager, of Cleveland, was continued as treasurer, and F. H. Floyd, of Waco, Tex., was elected secretary to succeed A. V. Hall, Grand Rapids, Mich.

Brosseau Tells Coolidge

(*Continued from page 769*)

20. It is probable that railroad regulatory laws, founded on monopoly, should now be reviewed in the light of current conditions to determine the possibility of lessening their requirements and the costs to the public and the railroads of their administration.

21. Such a study of railroad regulation is a prerequisite of any consideration towards applying the present laws to new and non-monopolistic services on the public highways.

22. The public is interested in the most efficient transportation of all kinds. It will be better maintained by removal of unsound railroad regulation than by the addition of burdens upon motor transportation.

Power

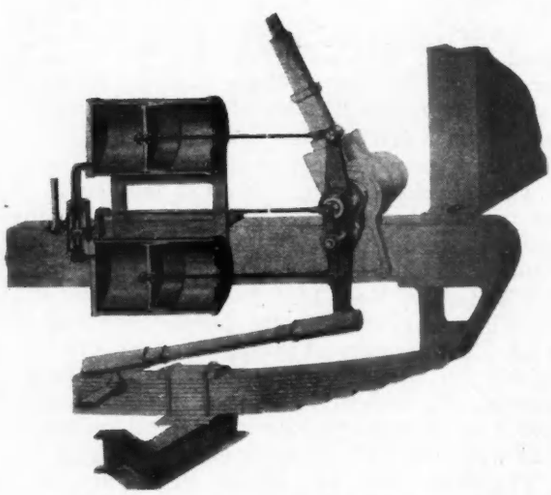
This is the second article by the author on power steering. The first appeared in the December 10 issue of Automotive Industries

A VACUUM-OPERATED steering booster has been developed by the Societe Anonyme du Servo Frein Dewandre, Liege, Belgium, manufacturer of vacuum brake boosters. An assembly view of this device, with the power cylinders and valves in section, is shown herewith. It will be seen that two single-acting power cylinders are used, and the brake arm is developed as a double-armed lever, each of the arms of which connects by cable to the piston in one of the power cylinders. The two cylinders are mounted, one above the other, on a bracket which is rigidly bolted to the frame side rail.

Control of the power cylinders is through a piston-type of double valve connected to the cylinders on the one hand, and to the suction line leading to the engine inlet manifold, and to the atmosphere, on the other. The atmospheric port is at the center of the valve housing adjacent to the bracket for the bell-crank for operating the valve. In the drawing the valve is shown in the central or neutral position, in which both cylinders are open to both the suction line and the atmosphere. Pressures in both cylinders therefore are equal, and there is no tendency for the pistons to move the steering arm around its fulcrum in either direction.

Control of the valve is through the medium of a floating lever, similar to that used in the Dewandre vacuum brake booster. One end of this lever is forked, and the fork surrounds a pin secured into the side of the steering arm, with a certain clearance. As the steering arm is moved in one direction or the other by the driver pulling on the steering wheel, the clearance between the prongs of the fork and the pin in the steering arm is taken up, and any further motion of the steering arm moves the valve into such a position that the cylinder toward which one of the arms of the "steering arm" approaches is cut off from the atmosphere and opened more widely to the suction line, whereas the other cylinder is closed to the suction line and opened wide to the atmosphere. The suction then draws the steering arm in the same direction in which it is being moved by the efforts of the driver.

Various concessionaires under Dewandre patents in other countries have developed vacuum-operated steering boosters of their own, differing in details from that developed at Liege. In England, for instance, the Clayton-Dewandre Company, Ltd., took out patents on a vacuum-operated steering gear employing a single, double-ended power cylinder, and

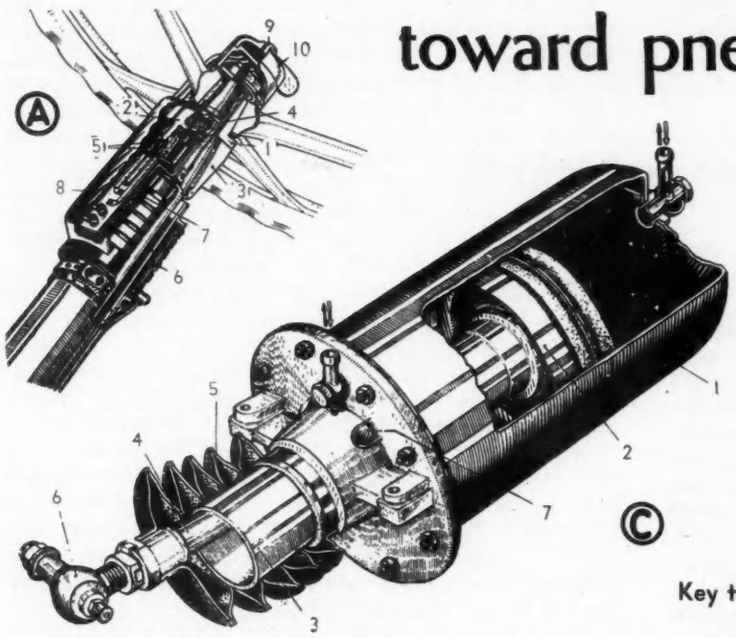


Dewandre vacuum steering booster, with cylinders and valves in section

Steering

——trend in Europe swings toward pneumatic operation

by P. M. Heldt



Sectioned views of upper end of steering column and power-cylinder of Bosch vacuum steering booster

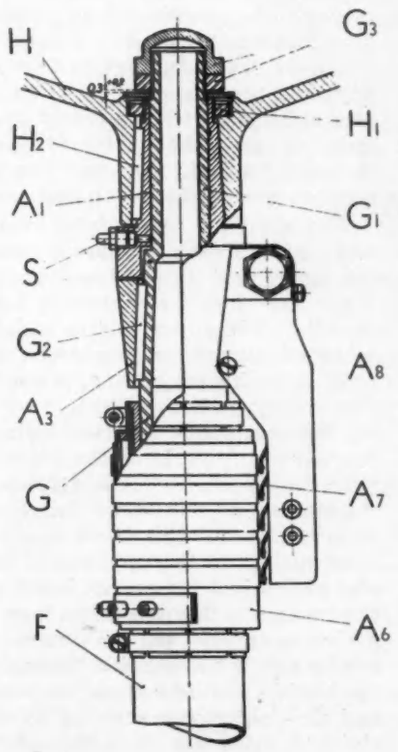
in Germany the Robert Bosch Company built a steering booster, of which an example was mounted on the Henschel mammoth motor truck with 12-cylinder engine exhibited at the commercial vehicle show held at Olympia, London, last Fall.

The Robert Bosch Company of Stuttgart, Germany (American representatives, United American Bosch Corporation, Springfield, Mass.), manufactures a servo device for steering gears operated by vacuum in which the control valves are actuated by electromagnets. As may be seen from the illustrations of this device, the vacuum cylinder (of steel tubing) is double-acting. Its piston is provided with a tubular extension which is guided in the bore of a boss on one of the cylinder heads. Through this tube passes the connecting rod, which connects to the piston and the stering arm (or an intermediate arm) by means of spherical joints. An air-tight joint between the tubular extension and the cylinder head is effected by means of a stuffing box and the exposed part of the tubular extension is protected against dirt by a leather bellows. The vacuum cylinder is mounted on the frame side rail.

Admission of vacuum or of atmospheric pressure to opposite ends of the cylinder is controlled by means of an electro-magnetic double valve. The valve has an aluminum housing with two chambers, in each of which there is a vacuum valve B_2 and an atmospheric valve B_3, as well as an electromagnet B_5. Each chamber of the double valve communicates with one end of the double-acting cylinder. The two vacuum valves lead into a common space which communicates with the vacuum tank, while the two atmospheric valves lead to a common space which communicates with the atmosphere through an air

Key to illustrations at left

- A_1, upper part
- A_2, tongue
- A_3, lower part
- A_4, return spring
- A_5, contact springs
- A_6, contact slip rings
- A_7, slip springs
- A_8, protecting housing
- A_9, horn button
- A_{10}, dimming switch
- C_1, cylinder
- C_2, piston
- C_3, guide tube
- C_4, connecting rod
- C_5, leather bellows
- C_6, ball joint
- C_7, lubricator



Sectional view of upper end of steering column with slip rings and contacts for operation of valves of steering booster (Bosch)

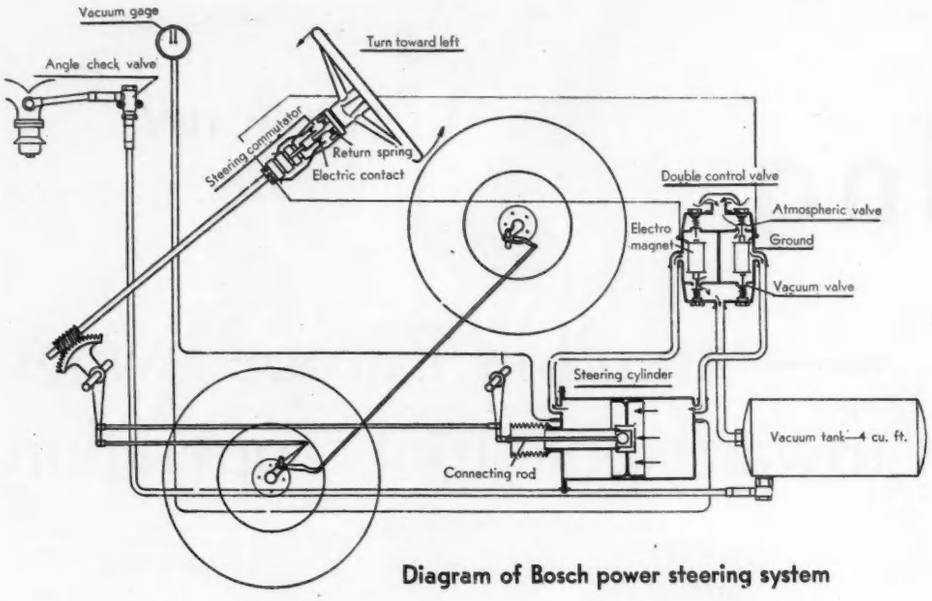


Diagram of Bosch power steering system

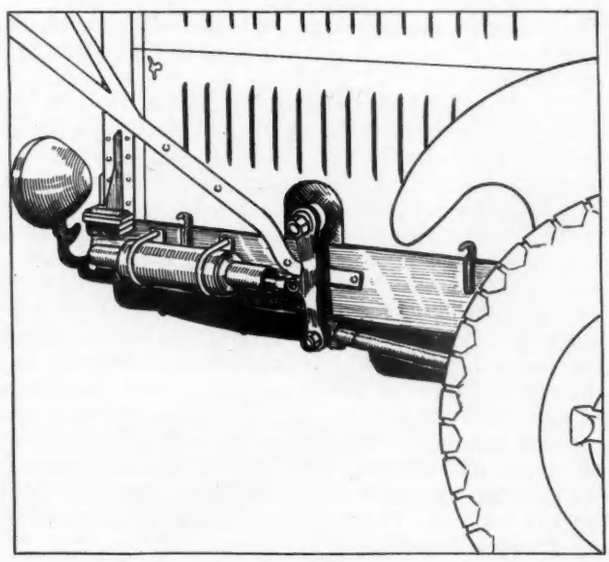
cleaner. All of the valves are spring-loaded, and the springs of the vacuum valves are somewhat stronger than those of the atmospheric valves. As the stems of both valves of each pair are in contact with the magnet core, in the position of rest the two atmospheric valves are held open and the vacuum valves closed by the strong springs B_1. If by a pull on the steering wheel one or the other of the electromagnets is energized, the corresponding magnet core is pulled by its coil toward the vacuum valve and this valve is opened, the corresponding atmospheric valve being simultaneously closed by its spring. Only one of the two coils draws current at a time, and the other pair of valves remain in the position of rest. This allows atmospheric air to flow freely into the end of the cylinder opposite that which is in communication with the vacuum tank, thus pushing the piston in the direction toward the evacuated end.

The steering commutator, mounted at the upper end of the steering column, consists of three parts, the upper part A_1, the lower part A_3, and the contact rings A_6. The lower part is keyed to the steering spindle. The upper part to which the steering wheel is keyed surrounds the lower part and is mounted on it in such a way that it is capable of a slight relative rotary motion. Electric terminals are mounted on the stationary steering column, and current is carried to the parts of the commutator which rotate with the steering spindle, by means of slider springs A_7 bearing on slip rings A_6. Rotation of the upper part relative to the lower one is limited by a substantial lug on the upper part which is located in a slot milled in a lug on the lower part. Connection of the two parts through these lugs is of so substantial a character that the maximum effort of the driver can be safely transmitted through it in case the servo mechanism should become inoperative for any reason and the driver be compelled to steer by hand. It is claimed, moreover, that the slight play due to this connection is not annoying in any way, since it is negligible in comparison with the backlash due to other parts of the steering mechanism.

The upper part, in addition, is provided with a tongue A_2 located between two contact springs A_5. These springs, the same as their co-acting contacts, are secured to the lower part A_3 and are electrically connected to the lighting circuit of the vehicle through one of the slip rings A_6. Any relative motion between the upper and lower parts of the steering commutator, due to a pull on the steering wheel, will bring the corresponding contact spring into contact with its co-acting contact through the intermediary of an insulated pin lodged in the lug on the upper part. This contact is over a contact spring on one of the slip rings A_6, from which latter connection is made to the coil of one of the electro-magnets.

The tongue A_2, moreover, is located between two stops on the lower part, against which it presses through coiled springs A_4. These so-called return springs serve to adjust the contact-closing pressure, for their counter-pressure must be overcome before the relative motion between upper and lower part necessary for the closing of the circuit can take place. When the steering wheel is released by the driver, these return springs return the upper part to the "dead" central position.

Only three of the five contact rings shown in the illustration are used to carry current to the electromagnets of the steering control valve. One of the



Compressed air steering booster mounted on truck frame

other contact rings is for a horn button on the steering wheel and the other for a headlight dimming device located in any convenient position.

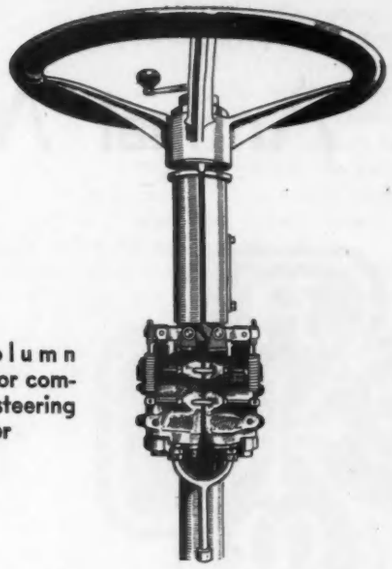
The operation of this steering servo is as follows:

If the driver desires to steer toward the left, for instance, he turns the steering wheel in that direction in the usual way. The wheel, with the upper part of the steering commutator, then moves slightly toward the left relative to the lower part A_s of the commutator and the steering spindle. This puts one of the return springs under pressure, and at the same time it closes the corresponding contact. The return spring is preferably so adjusted that a pull of about 10 lb. is required on the steering wheel in order to close the contact. The electromagnet of the servo control valve whose circuit is closed through the contacts is now furnished with current, with the result that the vacuum valve is opened, and the atmospheric valve opens automatically at the same time. This places the corresponding end of the vacuum cylinder in communication with the vacuum tank, and it is rapidly exhausted to the degree of vacuum existing in the tank. The other end of the cylinder remains open to the atmosphere. The difference between the pressures acting on opposite sides of the piston presses the piston in the direction toward the evacuated end of the cylinder, thereby helping to pull the front wheels toward the left, as desired. As soon as the pull of the driver on the steering wheel decreases below the pressure of the return spring, the steering control circuit is opened, the servo-valve electromagnet becomes "dead," and the spring of the vacuum valve closes this valve, thereby automatically opening the atmospheric valve. Thus the left end of the cylinder is opened to the atmosphere, and since both sides of the piston are now subjected to the same (atmospheric) pressure, the effort of the piston on the steering arm ceases.

Operation of Steering Servo

For the operation of the steering servo it is desirable to have a substantially constant vacuum. The vacuum in the inlet manifold varies between about 0.1 atmosphere when the throttle is wide open, and 0.7 to 0.8 atmosphere when the car is coasting with the throttle closed. To assure the desired high and constant vacuum, a vacuum tank of about 4 cu. ft. capacity is provided which communicates with the inlet manifold through a check valve. The vacuum in the tank can be read off on a vacuum gage at any time.

A compressed-air steering booster has been tried out for about a year on a truck of the Knorr Bremse company, a German firm specializing in air brakes for motor vehicles, etc., and a brief description (unfortunately without sectional drawings) appeared in a recent issue of *Automobiltechnische Zeitschrift.* The equipment consists of two positively operated valves mounted on the steering column, a power cylinder mounted outside one of the frame side rails, and the necessary connections. It is, of course, necessary to have a source of compressed air on the truck, but it is assumed that the vehicle is already equipped with a compressor for the air-braking system. Compressed air is admitted to both ends of the power cylinder through a control valve, and the two valves are mounted on the stationary tube of the steering column a short distance underneath the steering wheel. The piston rod of the power cylinder connects directly to the steering arm.



Steering column with valves for compressed air steering booster

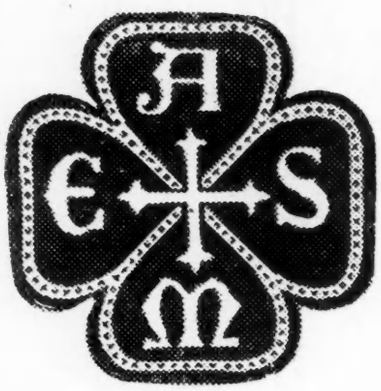
The steering wheel has a slight angular play on the steering post. The hub of the hand wheel carries on its under side, which is perpendicular to the axis of the steering column, two roller blocks, the axes of the rollers intersecting the axis of the steering column at right angles. Two concentric control bushings surround that portion of the steering post which is not within the steering-post housing. The bushings are capable of axial motion relative to the steering column, but their rotation is prevented by a key which passes through both bushings and into the steering post. The flanges at the upper ends of the bushings are beveled off at the ends, and each roller lies between a flange on the outer and a flange on the inner bushing. The two bushings are pressed firmly against the roller by springs attached to the arms of the valves, extensions of which arms press against the lower ends of the bushings.

If the driver turns the steering wheel slightly to one side, the steering post at first does not move. The roller on the hub of the steering wheel then rides up the inclined or beveled end of the bushing and that bushing is forced downward. This has the effect of closing the valve which controls the admission of compressed air to one end of the cylinder and at the same time placing the other end of the cylinder in communication with the atmosphere. If the driver releases the steering wheel, the valves return to their neutral positions, and compressed air is again admitted to both ends of the cylinder, holding the vehicle to the course for which the steering gear has been set.

Among the advantages claimed for this steering gear is that when making a right-angled turn with a heavy vehicle in a narrow street, it is not necessary for the driver to grip the steering wheel simultaneously with both hands. Owing to the lesser effort required he can take hold with the two hands alternately, and thus complete the turn more rapidly.

The particular truck to which the experimental gear was applied was of the type in which the engine compartment projects far forward of the front axle. The steering arm is, therefore, located about midway between the two hood latches, the power cylinder is forward of the arm on the side of the frame side rail, and the drag link extends back from the arm to the steering knuckle.

Annual Meeting Treats Production



by Joseph Geschelin

OUT of the rich diet of technical papers and discussion dished up by the ASME in its Annual Meeting in New York during the week of December 5, we participated in just a few chosen sessions relating particularly to machine shop practice and management. The following, therefore, is but a passing comment on the proceedings in this field.

As one might suspect from the spirit of the times, great emphasis was placed upon the aspects and implications of the economic situation. Much thought, by many outstanding personalities has been given to the ramifications of the subject.

Thus, A. W. Robertson, chairman of the board, Westinghouse, Electric & Mfg. Co., and chairman of the Committee on Industrial Rehabilitation, made this the subject of the fifth Henry Robinson Towne Lecture, in a thesis which he termed, "The Scientific Approach to Human Affairs". He placed upon engineers the burden of finding the means of balancing technical progress and the prevailing economic structure.

While knowledge in political science and economics has been doing business at the same stand, technological advances have come upon us by leaps and bounds with overwhelming consequences.

Mr. Robertson stressed the need of reliable knowledge in the field of human relations. It may demand a new educational movement; it will require the injection into large units of the scientific methods now in use in smaller units. Finally, the new order demands better international cooperation which can come only as we learn the laws governing an individual state.

Two of the management papers, "Management Essentials for Recovery" by Carle M. Bigelow, and "The Economic Characteristics of the Manufacturing Industries" by Walter Rautenstrauch, had already appeared in Mechanical Engineering for November, 1932 and therefore need little further comment.

However, discussion indicated that there was reasonable doubt as to the validity of Mr. Bigelow's essentials as applying to the pressing needs of industry today. His eight points repeated below are indeed an admirable platform for any progressive management. But they seem to offer little encouragement to an industry coping with its immediate and pressing problems.

"The management procedure required to bring about a general recovery of sound business conditions according to Mr. Bigelow is as follows:

a Determine product characteristics from the consumer's viewpoint.

b Determine the minimum volume that can be absorbed by economic distribution efforts.

c Organize the production facilities to produce this volume.

d Consider this minimum volume as normal and meet increased demands by overtime or additional regular hours of labor.

e Measure all efforts of personnel and compensate them in terms of their contribution to the ultimate profitableness of the business.

f Put aside for all time the "volume complex."

g Consider just as essential as insurance:
Maintenance of employment
Building up strong cash reserves
Adequate research.

h Develop a spirit of cooperation with each industry rather than competition."

Decentralization

"Dissolving of Concentrated Industries," a study into the decentralization of industrial organizations, by Harold V. Coes, is an earnest research into the shifts that have taken place in recent years. Its contribution is the compilation of statistical data and the formulation of a method of attack. Much additional work must be done in exploring the ramifications in this field. Both the paper and subsequent discussion suggested the existence of a trend to smaller industrial units. Dean Dexter Kimball, in fact, proved by a simple blackboard demonstration that on the basis of the law of diminishing returns a business need never be large nor production in huge lots in order to produce goods at the lowest possible cost.

L. P. Alford, distinguished author and economist, prepared the fourth annual report entitled, "Ten Years Progress in Management, 1923-1932." It is a live outline of accomplishment in this field and well worth a reading in full. Among its more important elements are comments on the human factors in industry, wider acceptance of the high wage theory, the spread of industrial research, and the continuing shift to lower working hours.

At the round table conference which has become an institution at these meetings, Prof. S. H. Slichter, of Harvard, held out little hope that business cycles can be anticipated or leveled off. He pointed out in his informal paper on "The Problem of Business Stability," that shocks and impacts must come in a system of free exchange (where exchange is defined as the operation of the laws of supply and demand) because there is no way assuring that income is continually exchanged for goods.

He held that accurate forecasting is impossible without some change in the political system resulting in some limitation of economic freedom. Much as in the lecture of Mr. Robertson, the speaker feels that uncontrolled growth of industry or even individual units in

from Economic Viewpoint

the industry is a serious cause of maladjustment.

Prof. Slichter recommended a more informed investment of capital based upon better investment advice. To this end he suggested the establishment of a National Investment Board, whose function would be the accumulation and publication of financial data.

L. P. Alford and J. E. Hannum presented a study entitled, "Applications of the Kmh Method of Analyzing Manufacturing Operation," as a follow-up on an original study of the kilo-man-hour method first presented by the authors in 1928. The present study is based upon new data from the last U. S. Census. Its chief contribution is the analysis of statistical data as applied to industry by means of the kmh factor which is demonstrated to be a tool of universal application.

So much so that data presented on the basis of the kmh analysis makes possible a direct comparison of the operations of dissimilar industries.

A Super-Lathe producing one-and-a-half tons of chips an hour with cemented carbide tools, was described by A. A. Merry in his paper, "What Can Be Accomplished with Modern Machine Tools and Cemented Carbide Cutting Tools." This lathe was built by the American Tool Works for the General Electric Co. The lathe will be used not only in production but for the purpose of testing the further possibilities of newer cutting tool materials. One of the outstanding features of the tooling of this lathe is a chip breaker patented by the lathe manufacturer. This attachment breaks up chips efficiently and lays them right down on a chip conveyor.

J. M. Highducheck, of W. E. & Mfg. Co., who has contributed a great deal of practical information on the subject of cemented carbide tooling, presented a new report dealing with, "Grinding Cemented Tungsten-and-Tantalum-Carbide-Tipped Tools Economically. He feels that many people still are missing the value of cemented carbide tooling because they are unfamiliar with the latest ideas on grinding and grinding set-up. At Westinghouse, all cemented carbide tools are ground in a central tool room equipped with the proper grinding machinery, fixtures, grinding wheels, etc. Operators have been specially trained in the handling of cemented carbides to the point where the company now buys semi-finished tools and finished them in their own tool room, thus effecting considerable economy.

The fourth progress report of the Sub-Committee on Cutting Fluids of the ASME "Performance of Cutting Fluids in Drilling Various Metals," was presented by O. W. Boston and C. J. Oxford. This series of tests demonstrates the effectiveness of the current types of sulphurized cutting oils and confirms by laboratory test the practical conclusions that have been published recently in *Automotive Industries*.

Much of the discussion hinged about the reasons for the effectiveness of sulphurized materials bringing to the fore some of the speculation now rife in connection with E-P lubes.

M. D. Hersey, well-known research worker in the lubricants field, suggested that much more study is needed on the performance factors such as tool life, temperature rise at the cutting edge, rate of dulling of the cutting edge, and rate of penetration. His idea is that the value of such research depends upon the ability to measure these values on the same cut in the same set-up.

It was suggested in discussion that the function of sulfur in the oil is an anti-seizant (if we may use a coined word) or an anti-weld ingredient. This is preferred to the concept of sulfur as a cooling medium.

Part of the author's conclusions concerning the effectiveness of the cutting oils is quoted below:

"The influence of the different cutting fluids on each metal is shown. With the net output power for drilling dry expressed as 100 per cent, the savings made are as follows:

33.3 per cent for S.A.E. 1020 steel when using a sulphurized oil

31.7 per cent for aluminum alloy when using a 90 per cent mineral-10 per cent lard oil

26.0 per cent for S.A.E. 1035 steel when using a sulphurized lard-mineral oil

23.0 per cent for S.A.E. 3150 steel when using a sulphurized mineral oil

21.0 per cent for carbon tool steel when using sulphurized mineral oil

17.2 per cent for cast iron when using a mineral oil containing 5 per cent oleic acid

10.5 per cent for malleable cast iron when using any kind of an oil, such as lard, mineral, compounded, or sulphurized

6.8 per cent for S.A.E. 1112 steel when using a sulphurized lard-mineral oil.

T. G. Digges discussed the results of a study at the Bureau of Standards of the work hardening near the machined face arising from the effect of cutting with lathe tools. Briefly the conclusions reached in his paper, "Effect of Lathe Cutting Conditions on the Hardness of Carbon and Alloy Steels," are as follows:

Cutting Carbon Steels

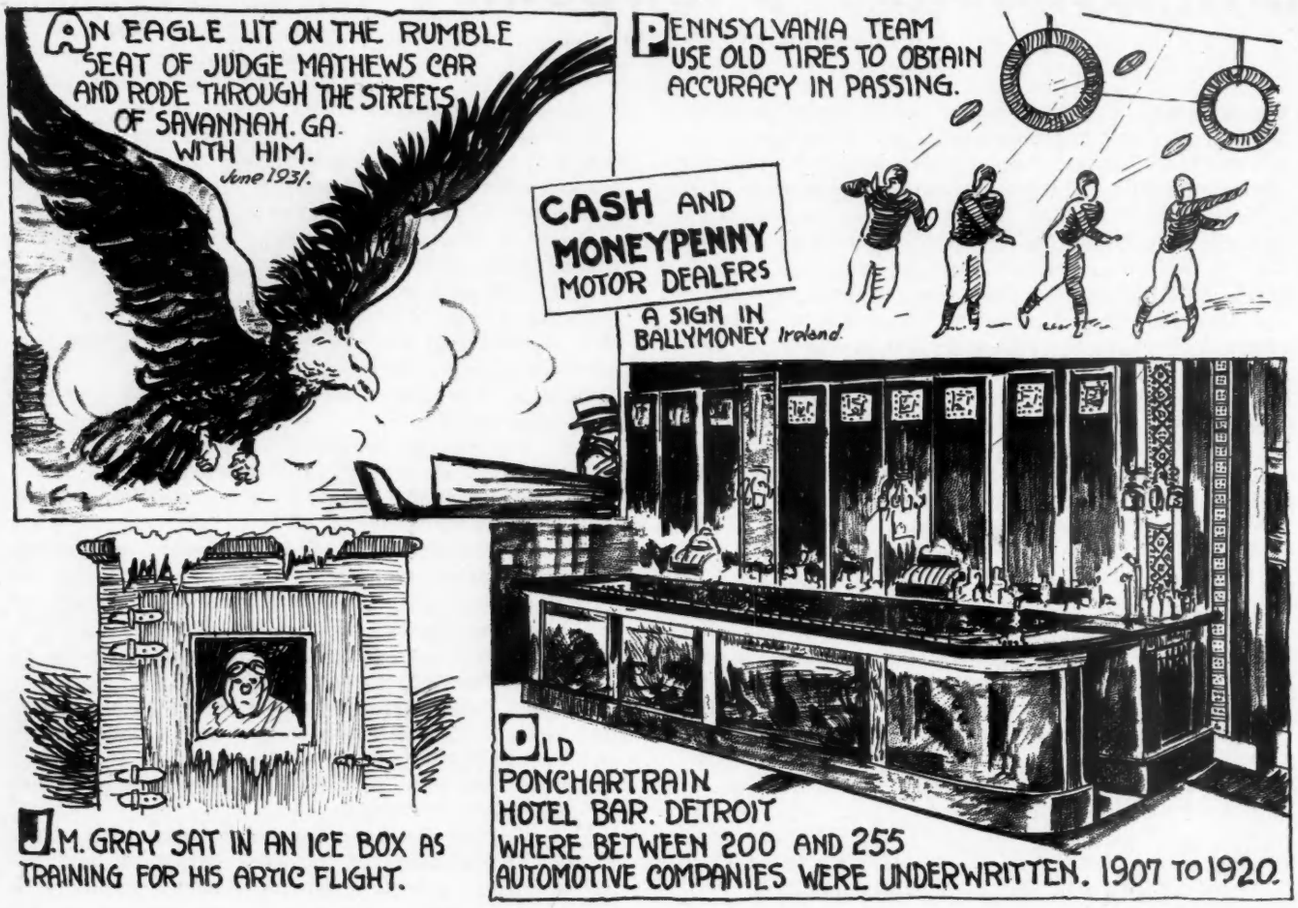
"All the lathe tests were made without cutting liquids with sharp tools, and the cutting conditions were varied depending upon the purpose of each set of tests. The amount of work hardening was not influenced by changes in the cutting speeds of the lathe tools. With a given area of cut, the amount of work hardening was affected equally by changes in the feed or depth of cut.

"Of the annealed plain carbon steels ranging from 0.12 to 1.10 per cent carbon, the steel of lowest carbon content showed the greatest increase in hardness at the machined surface. The differences in the susceptibility to work hardening of the annealed carbon steels was not influenced by the nitrogen contents of the steels.

"The free-machining 18-8 stainless steel with small areas of cut had no marked increase in the surface hardness, but with increase in area of cut there was a continuous increase in the hardness.

"The hardness of the cold-worked plain carbon and 3½ per cent nickel steels was, in general, increased by annealing within the range of 100 to 400 C, but with further increase in annealing temperature the hardness decreased. The hardness from cold working was removed by heating to 720 C."

Automotive Oddities—By Pete Keenan



Write us if you know an Oddity

The News Trailer

It'll take a Houdini to transfer license plates in Mississippi. A recently invented tag locks itself to the car, and cannot be removed without defacing it for further use, as a move to fight stealing cars and using substitute tags.

Purchasers of automotive vehicles made in Poland, after obtaining a certificate from the military authorities to the effect that such vehicles are suitable, in case of need, for purposes of national defence, will receive a premium from the State Road Fund, as an added incentive to buy Polish products.

It'll cost $12 to have a cellophane-wrapped car delivered Christmas morning, Advertising Creators say. They offer 93,000 square inches of the transparent, a huge ribbon and card—and suggest that it be used in displaying a car or just as a little help to Santa Claus.

Elected partly on his campaign for a "$3 flat rate for car licenses" Gov.-elect Talmadge has advised all citizens of Georgia to "wait until the incoming Legislature acts on the proposition." Some $3,000,000 will be saved to motorists, but Cracker State legislators are wondering where this revenue will come from—if at all.

Pennsylvania is considering further limitation of weight and length of motor trucks and trailers.

In a letter to the other forty-seven Governors, Gifford Pinchot announced today that Pennsylvania is deeply interested in legislation that will protect roads.

San Antonio's Public Service Co. is planning to substitute buses for street cars, provided the city council approves the change.

NEWS

Continental Will Retail Cars Direct

9000 Dealers and 58,000 Independent Garages are Queried About New Car

By Athel F. Denham

DETROIT, Dec 14—Announcement of plans involving direct selling by the factory to users of automobiles has been made by W. R. Angell, president, Continental Motors Corp.

"Continental is eliminating intermediate agencies which add to the cost of an automobile," Mr. Angel stated. "Continental is in an unique position to take this step since it has no established distribution predecents to overcome." In rural communities particularly, mail order selling will be used It should not be understood, however, that Continental plans to eliminate all activities formerly associated with dealer organizations. Direct mail literature sent to some 9000 dealers indicate that the company will probably establish a master-dealer organization to handle wholesale distribution of cars and service parts, these being located in key points throughout the country.

Another questionnaire was sent to 58,000 independent garages, indicating the possibility of a new form of associate franchise for such outlets. This is also hinted at in the Continental announcement referred to as "Continental Terminals."

In this latter questionnaire appeared three questions which probably have a direct bearing on this new phase of distribution.

"Are you equipped to service a nationally advertised automobile?

"If you did not have to handle trade-ins nor stock parts and cars, would you be interested in selling such an automobile as well as servicing it?

"Would you be willing to put up posters sales and service signs and window displays?"

It is understood unofficially that a tremendous return from independent garages indicates a desire to sell new automobiles. Continental's recognition of this important influence on new car sales and steps they will take to make use of this influence will be well worth watching.

Ford Factory-Outlet Formed in Louisville

Dealership is Fifth in Factory-Owned Chain As Outlets Decrease

LOUISVILLE, KY., Dec. 12—Announcement was made on Dec. 10, that the Ford Motor Sales Agency, Detroit, division Ford Motor Co., had taken a long term lease on a property here for a direct factory sales branch.

The Ford company plans spending about $12,000 on the property, which was formerly occupied by the Ditto Johnson Motor Co., a Ford sales agency.

Ford interests have installed factory branches in Buffalo, Cincinnati, Memphis and Baltimore.

The Buffalo development was the first announcement of Mr. Ford's move to enter the retail field. (page 567, Oct. 29, 1932, *Automotive Industries.*) The Ford company im-

(*Continued on page 784*)

Willys Line to Be Priced from $500

Floating Power Not Only Advanced Feature, Willys Says; To Hire 4600

TOLEDO, Dec. 13—New 1933 cars of the Willys-Overland line will sell for less than $500, according to announcement of John Willys, chairman.

He confirmed report that the car will have floating power engine mounting, but said Willys-Overland is not resting its case for 1933 on this feature alone.

Ultra-modern design and performance at a price range gaged to present conditions is the company objective.

Company expects to have 4600 men at work by January 1 and production lines are to get under way before Christmas.

Business in Brief

Written by the Guaranty Trust Co., New York, exclusively for Automotive Industries

NEW YORK, Dec. 14—There was a fair volume of retail trade last week resulting from the colder weather that followed the unseasonably high temperatures in some sections of the country and from the holiday demand.

Reports here and there indicate that there is a possibility that holi- a year ago, and a decline of 239,611 day trade this year may reach last year's levels. However, prices are very low; and, in those cases where sales show a fair volume, the dollar values compare unfavorably with those a year ago.

Orders for immediate delivery have aided some wholesale lines, but general wholesale trade exhibits the lag usual at this time of year.

BUSINESS FAILURES DOWN

The number of business failures during November, according to R. G. Dun & Co., was 2,073, as against 2,273 during October and 2,195 a year ago. Liabilities involved in the November failures totaled $53,621,127, the smallest for any month this year excepting October, as against $52,869,974 in October and $60,659,612 a year ago.

CAR LOADINGS GAIN

Railway freight loadings during the week ended Dec. 3 totaled 547,461 cars, which marks an increase of 53,579 cars above those during the preceding week that included the Thanksgiving holiday, a decline of 88,905 cars below those cars below those two years ago.

MORE U. S. COTTON USED

According to the New York Cotton Exchange Service, the world consumed 323,000 more bales of American cotton from Aug. 1 to Oct. 31 than in the corresponding period last year, but 274,000 bales less of foreign growths.

CRUDE OIL UP

Average daily crude oil production for the week ended Dec. 23 amounted to 2,127,550 barrels, as against 2,099,250 barrels for the preceding week and 2,449,850 barrels for a year ago.

FISHER'S INDEX DOWN

Professor Fisher's index of wholesale commodity prices during the week ended Dec. 10 stood at 58.7, as against 60.2 the week before and 60.5 two weeks before.

BANK DEBITS DOWN

Bank debits to individual accounts outside of New York City during the week ended Dec. 7 were 15 per cent below those a year ago.

STOCK MARKET

Prices on the stock market last Monday declined after Congress failed to obtain a majority for the repeal of the prohibition amendment, but the tendency was upward during the remainder of the week.

Favorable developments included strengthened cotton prices and a moderate recovery of sterling exchange. Trading was an a light scale, and practically all issues showed some gain for the week.

FEDERAL RESERVE

The consolidated statement of the Federal Reserve banks for the week ended Dec. 7 showed decreases of $10,000,000 in holdings of discounted bills and $1,000,000 in holdings of bills bought in the open market.

Holdings of Government securities remained unchanged.

The reserve ratio on Dec. 7 was 62.9 per cent, as against 62.2 per cent a week earlier and 62.7 per cent two weeks earlier.

Truck Laws Assist Rails in Oklahoma

Cotton Hauling Shows Marked Gains by Steam Lines Against Vehicles

OKLAHOMA CITY, Dec. 14—Oklahoma's stringent truck regulatory laws allowed railroads to regain some of their lost cotton tonnage. Up to Nov. 25, rails carried 77 per cent of the total for the year, as compared with 62 per cent for the same period of last year. During this period truck shipments declined from 39 to 22 per cent.

The inroads made by the carriers into the trucking traffic were accomplished in the period in which the latter usually is at its heaviest proportion. Late season shipments seem to move largely by rail. Last season rail shipments after November 25 to Houston were sufficient to bring the seasonal shipments of the railroads to 55.7 per cent of the total receipts.

Most Oklahoma cotton last season moved to the gulf ports for export. This season a large part of the crop will go to American mill centers.

The Texas truck regulation law, which was recently upheld by the United States Supreme Court, is viewed as highly constructive from the standpoint of the railroads who attribute much of their cotton traffic gains to the stricter regulation of their competitors.

While there has never been serious question as to the power of the state to regulate operations of "common" carriers, the rise of the "contract" carrier—under which much of the cotton was transported—had presented a different problem.

Overloading of huge trucks with cotton, increasing highway congestion and multiplication of accidents and dangers on the highways, was given as the primary motive for the enactment of this legislation in Texas.

The Supreme Court opinion held that the statute "may be construed and sustained as a constitutional exercise of legislative power to regulate the use of the highways."

The implications of the decision are that a state may go far in regulation of the highways where the primary purpose is to conserve them and to maintain their safety. It is likely to serve as a valuable precedent for guidance in the framing of new bills elsewhere.

DeSoto Production for 1933 Begun

DETROIT, Dec. 10—De Soto Motor Corp. today went into production on the new De Soto Six for 1933.

Byron C. Foy, president of the company, said that manufacturing plans for 1933 call for an increase over the volume for 1932. He said that this was in spite of the fact that by comparison with the showing of the industry as a whole in 1932, De Soto in 1932 made a better relative showing than any other car, except Plymouth, which is also sold by De Soto dealers.

De Soto's decision to go into production early on its 1933 car enabled the company to add to its payroll thousands of former employees who had been out of work or were working part time. Production will be stepped up as fast as is consistent with De Soto's precision manufacturing standards, it was said.

(The new models will be described in detail in *Automotive Industries*—Editor.)

Graham-Paige Shifts Personnel

DETROIT, Dec. 12—C. W. Matheson, general sales manager of Graham-Paige Motor Corp., has announced the following appointments and transfers in field personnel.

Henry T. Parrett has been named Pittsburgh district manager, having been transferred from the Chicago territory. F. B. Walker, formerly Minneapolis district manager, goes to the Chicago district. In the home territory, Frank A. Garry was made Detroit district manager. W. B. Roberts goes to Kansas City as district manager and J. W. Carter to Washington, D. C., as district manager.

Says Gas Taxes Check Use of Cars

Hanch, in N.A.F.C. Survey, Shows Severe Losses in High-Levy States

CHICAGO, Dec. 14—Gasoline taxes which in times of prosperity had no apparent effect on the registration of motor vehicles, have, since the end of 1929, definitely checked the use of automobiles and motor trucks in every state in the Union, the decline in registration being sharpest in the four states in which the 6-cent tax obtains, according to C. C. Hanch, general manager of the National Association of Finance Companies.

This is revealed in a series of graphs prepared by association as the result of a nation-wide survey.

As the companies represented in the association finance nearly 80 per cent of new cars sold on the deferred payment plan, they are inclined to view with some uneasiness the effect of the newly enacted 1-cent federal gas tax on top of the existing state imposts.

"In the five states where a 2-cent tax prevails," said Mr. Hanch, "our figures show that registrations, which increased rapidly from 1926 to 1929, made only a slight increase in the two years following.

"In the 11 states in which a 3-cent tax law is in operation, registrations practically came to a stop in 1930 and declined in 1931. The same holds true in the 17 states levying a 4-cent tax, except that the falling off is more decided.

"The decline, beginning in 1930 in the 5-cent gas tax states, was even more precipitate in 1931, while in the four states where the tax is 6 cents, registrations last year were only about 87 per cent of those in 1929, falling below the 1927 level.

"Registrations in the 2-cent gas tax states have increased only 1.8 per cent in the last two years, while in the 6-cent group they have fallen off more than 13 per cent.

"Our survey has convinced us that hundreds of thousands of motorists could not afford to operate their cars during the depression."

1933 Chevrolet is Longer, More Powerful

(*Continued from page 767*)

Exhaust silencers are larger and give less back pressure—The packing flange on the muffler is integral with a separate pilot—Exhaust pipes are of heavier gage and spring-mounted—Muffler and tail pipe are rubber-mounted in such a manner that they can oscillate with the engine—Rate of rear springs is increasde and plate ends have their edges rounded to reduce wear—Thrust washers are selected to limit side clearance of spring eyes—Shock absorbers have serrated shafts and the set-screw lock is eliminated—Front axle centers have heavier section and spring pads are ⅝ in. lower in relation to wheel spindle—Lower spring pads and double drop in frame has lowered body sill ¾ in. —Angle lubrication fittings for front axle are more convenient—Brake drums increased in diameter (½ in.) and with—Twelve radial reenforcing ribs stamped in web of brake drum—Brake camshaft lengthened for better bearing support, and brake-shoe webs and anchor links strengthened—Leaf springs added to long brake shoes and outer guide, for better alignment and elimination of squealing—Separate parking shoe eliminated—Emergency linkage now attacks service brake linkage at main cross shaft—Fuel capacity increased to 14 gal., and fillers more accessibly located—Steering-gear ratio increased to 14 to 1—Binding of steering arm shaft guarded against by flanges at both ends of housing, eliminating the former clamp belt—Steering column insulated at dash by a cylindrical rubber grommet.

Body and equipment features not previously mentioned include the following: Longer and lower windows in closed cars—Stronger pillar construction—Doors provided with anti-draft sealts at bottom and drain channels at top—Door hinges strengthened by use of bolts instead of screws at points of maximum stress—Door flanges welded to panels—Ten instead of eight body bolts—Larger sun visors—Finger-tip adjustment of coach driver's seat—Wider doors—Natural wood bows in open models—Improved design of radiator core increasing capacity 18 per cent—Bayonet-type tail and stop-light connectors—Lower candle-power stop-lamp bulbs together with reflex lenses—Separate fuse for stop-lamp circuit—Rubber cover for horn terminals—Two bulbs on instrument panel—Control buttors on dash held in alignment by flats.

Pulcher Urges Canadians To Organize for Fight

Federal Truck Executive Says Organization Alone Will Foster Development

TORONTO, Dec. 12—Canadians were called upon to organize to fight exhorbitant automotive taxation and adverse motor vehicle propaganda by Martin L. Pulcher, president, Federal Truck Co., in an address here before nearly 1000 automotive transportation men of Ontario and Quebec.

Bringing about a stabilization of commercial vehicle operation rates, he said, was a matter of first importance if the transportation industry was to become established in the Dominion.

Mr. Pulcher declared that the organized efforts of transport operators required not only unified moral but substantial financial support, and started the ball rolling in the campaign in Canada by contributing $100.

With regard to the question of road damage, Mr. Pulcher declared a three-ton truck with balloon tires had no more effect on a pavement than a limousine.

He had found that the highways in Canada had been built much more substantially than those in the United States on the whole. The truck driver had been criticized, but he believed they were more alert and intelligent than the private motorist.

He criticized the truck industry for doing business with any but legitimate, authorized transport operators.

Fewer Use Cars In Quebec, Report

QUEBEC, Dec. 12—Motorists were affected by hard times generally this year, and 11,952 fewer automobile licenses were issued by the Provincial Government as a result.

Figures show that 164,854 sets of plates for motor cars were issued during 1932, as compared with 176,806 last year.

Truck Men Seek Reciprocity Plan

DETROIT, Dec. 12—To nationalize the issues of reciprocity and uniform regulation the Truck Association Executives of America has decided to bring these questions before the American Road Builders Association at its annual event to be held here Jan. 16-29.

To take advantage of a common meeting point, meetings of Motor Vehicle Administrators, Utility and Railroad Commissions and the Truck Association Executives of America are being arranged to take place during the same week.

Col. Chalmers R. Wilson, Ohio administrator and chairman of the Uniform Committee of Motor Vehicle Administrators of the North Central States, has issued a national call to a council of Motor Vehicle Administrators to be held Jan. 17.

Robert Dunn, chairman, Public Utilities Commission of Michigan, will issue a similar call to the utility and railroad commissions of the country to meet Jan. 18. Tom Snyder, secretary, Truck Association Executives of America, is working with Col. H. C. Kelting, chairman, to arrange the annual meeting of their body Jan. 19.

Casing Shipments Decline for Month

NEW YORK, Dec. 14 — Shipments of pneumatic casings for October amounted to 1,799,136 casings, a decrease of 41.6 per cent under September this year, and 36.9 per cent below October, 1931, according to the Rubber Manufacturers Association, Inc.

Production of pneumatic casings for October was 2,568,641 casings, an increase of 1.2 per cent above September this year, but 13.6 per cent below October, 1931.

Pneumatic casings in the hands of manufacturers on Oct. 31, amounted to 6,785,980 units, an increase of 12.8 per cent above Sept. 30 stocks, but were 17.2 per cent under October 31st stocks a year ago.

Actual figures follow:

	Pneumatic Casings		
	Shipments	Production	Inventory
October, 1932	1,799,136	2,568,641	6,875,980
September, 1932	3,082,285	2,538,720	6,096,098
October, 1931	2,851,653	2,973,755	8,300,065

Deep-Skirt Fenders 1 Yr. Old This Month

DETROIT, Dec. 12—Marking the anniversary of the introduction of the Graham eight, which on Dec. 8, 1931, gave motorists their first view of deep-skirted anti-splash fenders, sloping radiator grill, and concealed chassis design, the Graham-Paige Motors Corp. announced that in 12 months, sales of this advanced style model more then doubled the sales of Graham eights in the preceding year.

The company says that the Graham is the only eight that, during the current year, has shown a sales again over 1931.

Eden on Woods Board

William A. Eden, president, Dominion Rubber Co., Limited, Montreal, has been elected to the board of the Woods Manufacturing Co., Limited, Hull, Que. He succeeds to the directorship held by the late W. G. McMahon, of Winnipeg, Man.

Aviation Corp. Reports $309,600 Loss in Quarter

Result for Quarter Compares With $1,741,499 Deficit in the Preceding Period

NEW YORK, Dec. 19—The Aviation Corp. of Delaware reported yesterday a net loss for the quarter ended on Sept. 30 of $309,600 after all charges, including a loss of $242,484 on the sale of securities and a loss of $30,363 on the liquidation of surplus flying equipment.

This compares with a net loss of $188,426 for the quarter ended on Sept. 30, 1931, including a loss of $194,970 on the sale of securities. In the second quarter of 1932 the net loss was $1,741,499.

For the nine months ended on Sept. 30 the company reported a net loss of $2,875,002, including $1,631,665 loss on the sale of securities and a loss of $59,493 on the sale of surplus flying equipment.

This compares with a net loss of $917,907 in the first nine months of 1931, when loss on sale of securities amounted to $438,214.

Hongkong Duty To Be Lifted

HONGKONG, Dec. 10—(*Special*)—In resone to dealers' petitions, the Government has agreed to exempt from duty foreign motor vehicles landed in Hongkong before next Oct. 13.

This will involve a rebate of $150,000 Mexican (at current quotations about $30,000) upon vehicles valued at $75,000.

Dealers here complained that their trade had been at a standstill since the preferential duties were imposed on Oct. 14. The British colony of Hongkong dealt a blow to non-British motor car manufacturers last October when the Colonial Government ordered a levy of 20 per cent on the landed cost of foreign cars imported to Hongkong.

The duty was Hongkong's contribution to the British imperial preference plan resulting from the recent trade conference held in Ottawa.

Before the duty became effective, trade of foreign dealers in Hongkong was more than $500,000 a year.

Pharis Sales Up 76%

NEWARK, OHIO, Dec. 14—Pharis Tire & Rubber Co. November sales showed a 76 per cent improvement over the same period in 1931. The company ascribes its showing not only to better general market conditions but also to an aggressive sales policy that has been adapted to fit current conditions and has been highly acceptable to dealers and public.

British Seek Space In Canadian Show

Jan. 14 to 21 Set for National Exhibit to Be Held in Toronto

TORONTO, Dec. 14 — With the announcement by the Canadian Automobile Chamber of Commerce of the dates Jan. 14 to 21 for the 1933 National Motor Show of Canada, inquiries have been received from automobile manufacturers in Great Britain regarding exhibit space in the Automotive Palace of the Canadian National Exhibition here, where the show is to be held.

The Canadian show is "open to the world," although it is sponsored by Canadian manufacturers as represented in the Chamber organization. Ford Motor Co. of Canada, Ltd., is an exhibitor, although not a member of the Canadian association, and there is nothing to prevent car manufacturers of both the United States and the United Kingdom from exhibiting.

In view of the fact that British cars now enter the Dominion duty-free, it is expected that various manufacturers of Britain will take this first opportunity of presenting their latest to the Canadian public following the establishment of the increased preference for the British imports.

Milwaukee to Use Eagles Club for Show

MILWAUKEE, Dec. 12—After a battle of nearly a month, the Milwaukee Automotive Trades, Inc., has finally found a home in the Eagles Clubhouse for the 1933 Automobile Show, Jan. 14-21. Unable to secure a rent reduction for the auditorium, where shows have been held since 1909, dealers decided to lease the clubhouse, which affords the same area in various rooms.

Moto-Meter Plant Busy

LA CROSSE, WIS., Dec. 12—The La Crosse division of the Moto-Meter Gauge & Equipment Corp. has built up its payroll to 500 workers on a full-time basis, due to increasing orders from the automotive industries. The present force compares with 402 people working part time at the lowest point this year. In some departments employees are working 7 days and in others 5½ days a week.

Malleable Orders Up

BEAVER DAM, WIS., Dec. 12—Marked revival in orders from the automotive industries will keep the plants of the Western Malleables, Inc., here, busy at least until Jan. 1, according to H. L. Kirsh, general manager. Orders from other sources are also growing more encouraging.

Ford Factory-Outlet Formed in Louisville

(*Continued from page 781*)

mediately put into operation some policies which have long been recommended to dealers.

Announcements from Baltimore and Memphis followed in quick succession, and the Cincinnati and Louisville factory-dealerships were said to be logical moves since dealer representation in these cities have dropped considerably.

It is understood that the Ford policy is to put in factory branches in cities wherein it is unable to secure as many dealers as its quota. In Louisville there were but three dealers left of more than 10 at the peak.

It would not be surprising if Ford should place such branches in a good many of the larger cities and at factory or plant locations, it was said here.

Local dealers are not opposed to the movement, claiming that they would much rather have a well managed and sound factory branch, than some "wild cat" outlet, as it will result in clean, sound and business-like competition. Also it will be something of a proving ground for working out factory ideas, instead of such ideas having to be worked out by the dealers.

One dealer remarked that it would have been better if such branches had been installed seven or eight years ago, in that it would have given the company a more direct knowledge of some dealer problems.

The new Louisville factory branch will not handle Lincoln cars, which will continue with the Consolidated Motors Co., a co-operative sales organization, maintained by the Ford dealers of the three Falls Cities.

Ford Plan Fought By N. Y. Dealers

NEW YORK, Dec. 13—Leading Ford dealers here sent a round-robin telegram to the Ford Motor Co. protesting against the possible establishment of factory-controlled retail branches here.

They pointed out that this would provide undue competition against the regular independent dealers.

On Oct. 25, Edsel B. Ford, president of the company, said the retail branch program would not interfere "in any way" with the established Ford dealers.

Houdaille-Hershey Shows Sales Increase

DETROIT, Dec. 13—Houdaille-Hershey Corp. has reported that November sales were 20 per cent greater than the previous month and only 5 per cent below sales for November last year.

Olds and Fisher Plants Resume

Full Production Expected Within Two Weeks President Reuter Says

DETROIT, Dec. 12—Production at the Oldsmobile factories started today, according to an announcement by I. J. Reuter, president and general manager of Olds Motor Works. A full production schedule will be in effect within the next two weeks.

The same conditions apply to the Fisher Body plant, which adjoins the Oldsmobile factories and is devoted wholly to the manufacture of Oldsmobile bodies. This will mean employment for more than 4,000 persons.

"During the past week men have gradually been recalled for the building of various parts preliminary to filling the assembly lines and getting into full production," Mr. Reuter said.

"In resuming the full production schedule the entire factory personnel that will be returned to active duty will be made up of men already on the Oldsmobile payroll.

G.M. Stockholders Number 365,985

NEW YORK, Dec. 14 — The total number of General Motors common and preferred stockholders for the fourth quarter of 1932 was 365,985 compared with 364,401 for the third quarter of 1932 and with 313,117 for the fourth quarter of 1931.

There were 348,247 holders of common stock and the balance of 17,738 represents holders of preferred stock. These figures compare with 346,763 common stockholders and 17,638 preferred for the third quarter of 1932.

Lincoln Sales Gain

DETROIT, Dec. 12—Retail sales of Lincoln motor cars in November were 37 per cent greater than in the corresponding month a year ago, according to an announcement by the Lincoln Motor Company.

November was the third consecutive month in which Lincoln retail sales exceeded those for the same month last year.

Goetz in Cleveland

Richard Goetz, of Berlin, Germany, inventor of the "needle bearing," arrived on the Bremen to confer with his various licensees in this country. During his stay in America he will make his headquarters with Emil Gruenfeldt, Guarantee Title Building, Cleveland.

Making Improvements

MILWAUKEE, DEC. 12 — Gueder, Paeschke & Frey Co., sheet metal stampings, is making extensive changes and improvements in its enameling department.

President and Mills Recommend Repeal of Certain Excise Taxes

Message to Congress Seen as Stimulant To Renewed Activity to Eliminate Onerous Levy from Motor Industry

by L. W. Moffett

WASHINGTON, Dec. 15 — Recommendations of President Hoover and Secretary of the Treasury Mills for repeal of certain excise taxes and substitution of a general manufacturers' sales tax have aroused deep interest in automotive circles.

The onerous and discriminatory excise taxes resting against the industry are held to have proved, as had been predicted, a retardant in production and sales.

The National Automobile Chamber of Commerce, therefore, has prepared itself to fight vigorously for a repeal of these taxes if an opportunity presents itself. It stands ready as in the past to support a uniform general manufacturers' sales tax provided that form of taxation is deemed necessary as a means of balancing the budget.

It has been turned to by both the President and the Secretary of the Treasury as the only practical plan for overcoming a deficit, which for the current year is expected by some authorities to mount up to $1,000,000,000.

Neither the President nor the Secretary of the Treasury indicated precisely what excise taxes they desire to have repealed.

The President, in his message to Congress, recommended:

"That the manufacturers' excise taxes now imposed on certain articles be extended and in part replaced by a general uniform tax (excluding food). I have been advised that the annual yield of such a general tax, at a 2¼ per cent rate, would be approximately $355,000,000."

Mr. Mills was more detailed and a little more explicit, though not entirely clear in urging repeal "relatively unproductive" excise taxes and the enactment of a general manufacturers' sales tax.

Said Mr. Mills in his report to Congress:

"That those excise taxes which experience has demonstrated are relatively unproductive and give rise to serious administrative difficulties be repealed, and that there be imposed a general manufacturers' excise tax substantially in the form appearing in the bill originally reported by the Ways and Means Committee of the House of Representatives during the last session of Congress. It is estimated that such a measure with the 2¼ per cent rate will yield about $355,000,000, assuming a full year of collections, thus making possible the elimination of a number of the unsatisfactory and relatively unproductive new excise taxes."

The President did not make clear what "certain articles" now subject to excise taxes would have those taxes "extended." Nor did Mr. Mills make clear what excise taxes he considers have been "relatively unproductive." It is certain, however, that excise taxes on automotive products have fallen far short of yields estimated previously by the Treasury Department. In May the department estimated that the income from the excise taxes on automotive products, gas and lubricating oil would total $258,000,000 for the fiscal year 1933. The treasury now has just come out with a greatly scaled down estimated yield. It has been pared to $201,000,000. The chief cuts are due to slack sales, especially of automobiles, tires and lubricating oils.

Six-Year Ford Sales Show Lead in U. S.

Despite Interrupted Production, Models Since Days of "T" Have Stood Ahead

DETROIT, MICH., Dec. 17—Since 1927 when the Model T car was discontinued, Ford passenger car sales have led those of all other makes, a tabulation reported by the Ford Motor Co. disclosed today. This record, it was pointed out, was made despite the fact that Ford production was halted twice during this six-year period in preparation for the Model A and the V-8 Ford cars.

In this period from January, 1927, to and including October, 1932, the latest month for which reports have been compiled, Ford sales total 4,001,384, as compared with 3,705,827 for its nearest competitor and total sales of all makes of 15,183,842. Ford's share of all business in these six years was 26.4 per cent.

Manufacture of the Model T was discontinued in May, 1927, Ford being out of the market until December of that year when the Model A was announced.

Ford again was out of the market for the first five months of 1932 until volume deliveries of the new Fords began last June.

The year-to-year record follows:

	Ford	*Next Make*	*Total of All Makes*
1927	393,424	647,810	2,623,538
1928	482,010	769,927	3,139,579
1929	1,310,147	780,014	3,880,247
1930	1,055,097	618,884	2,625,979
1931	528,581	583,429	1,908,141
1932*....	232,126	305,763	1,006,358
	4,001,384	3,705,827	15,183,842

*10 months.

Ford passenger car sales in October were 20,410 units, which was 32.3 per cent of total sales of all makes. The next make registered 15,772, or 25.0 per cent of all makes. Ford has led in passenger and commercial car sales in the United States each month since June, when volume deliveries of new Fords began.

Canadian Rail Unions Urge Truck Regulation

TORONTO, Dec. 14—The question of motor vehicle and railway competition will be considered at the conference of the Federal and Provincial Governments at Ottawa next month, Premier G. S. Henry told railway union representatives last week.

The delegates asked the Premier that legislation be passed to place all trucks and buses operating within the Province under the control, administration and supervision of a transport commission.

The railroad union men alleged the railways were subject to unfair competition from motor vehicles and urged that the proposed transport commission fix rates and tariff changes and place bus and truck operation under conditions similar to those imposed upon railways.

The deputation urged a tax on commercial vehicles commensurate with the use they make of highways.

Michigan Sales Show Declines

DETROIT, Dec. 12—Michigan new car sales for November totalled 1560 compared with 2165 for October and 3416 for November, 1931.

Ford totalled 562, a decrease of 26 per cent from the October figure.

Plymouth registered 295, an increase of 50 per cent over October. Chevrolet sales totalled 238.

10-Months Sales Favor Ford Units

DETROIT, MICH., Dec. 13—Despite virtual absence from the market for several months early in 1932 due to the introduction of new models, Ford led all competitors during the first ten months of the year in sales of commercial cars and trucks, it was stated at the Ford Motor Co. offices today.

The statement, which was based upon official figures reported by R. L. Polk & Co., showed that Ford, during this period, had registered a total of 57,991 units, or 36.1 per cent of the total of 160,582 units of all makes. This compared with 55,754, or 34.7 per cent of the total, for the next.

British Makers Query Canadian Sales Outlets

TORONTO, Dec. 12—While little has been definitely done in the way of British car agencies in Canada, the automotive trade in Toronto, Montreal, Ottawa and Hamilton has received proposals from British manufacturers.

The way has been paved for British representation through the wiping out of the Canadian duty, but obstacles still exist in the 6 per cent sales tax, the arbitrary valuation of imports for tax purposes, the fixing of the value of the pound sterling over stated periods and the special excise tax of 1 per cent.

Further, the British manufacturer has shown little inclination to make the change-over to left-hand drive to meet Canadian traffic conditions, the claim being made that the prospects for sales in the Canadian market are so relatively small that the cost of design revision would be out of all proportion to returns.

Packard Stockholders Gain 85% in 32 Months

NEW YORK, Dec. 14—Holders of Packard Motor Car Co. stock now total 111,934, according to an announcement by Alvan Macauley, president. This represents an increase of 85 per cent over the 60,451 reported by the company on April 1, 1930.

"It is gratifying," said Mr. Macauley, "to note the rapid distribution of ownership in this company during the depression years. The 60,451 stockholders of April 1, 1930, had increased to 89,319 by Feb. 1, 1931, and to 104,756 at Jan. 2, 1932.

"Stock holdings of American industry have gained rapidly during the past few years.

"A few months ago a compilation of stockholders of 346 companies listed on the New York Stock Exchange, representing 31 industrial classifications, showed an increase of 41 per cent for two depression years.

"The 12 automobile companies included in this survey reported the better-than-average increase of 52 per cent."

A. E. Barlow

A. E. Barlow, 62, wholesale sales manager of the Moto Meter Gauge & Equipment Co., died early Dec. 12 in Harper Hospital, Detroit. He contracted a cold during the Joint Trade Show last week and was confined to his room at the Book-Cadillac hotel from Friday afternoon, Dec. 9, until Sunday afternoon, Dec. 11, when he was removed to the hospital.

From 1900 to 1915 he was Chicago district manager for the Eveready Co. and opened the San Francisco office for that company in 1915. In 1917 he returned east and joined the Moto Meter organization.

A few years later he joined the Rayfield Carburetor organization as sales manager, later returning to the Moto Meter Co. with which he was connected until the time of his death.

Frank in Europe

Arvid L. Frank, vice-president and general manager of the Studebaker Pierce-Arrow Export Corp., recently sailed for Europe where he attended the annual Brussels Automobile Show which opened Dec. 3 and continued to Dec. 14. He presided at the annual banquet given in Brussels by the corporation during the show in honor of its European distributors and dealers. Mr. Frank will return to the United States early in January.

McCord Elects Hamlin

Lot M. Hamlin, who has served as secretary and treasurer, was elected secretary and vice-president of McCord Radiator & Mfg. Co.

Charles O. Chestnut, who has served as assistant treasurer, was elected treasurer.

Reo Stockholders to Vote on Capital Reduction

DETROIT, Dec. 13—A special meeting of stockholders of Reo Motor Car Co. will be held Dec. 27 to vote on a proposal to reduce the authorized capital stock to $10,000,000 from $20,000,000 and to change the par value of the stock to $5 a share from $10.

This will make available for transfer to capital surplus the sum of $9,000,000.

A recommendation will be made that fixed assets be written down by $4,479,766 and that a further amount of $405,545 be set aside as reserve for other contingencies.

Inland Steel Resumes

CHICAGO, Dec. 12—Inland Steel Co. resumed operation of four open hearth furnaces at the Indiana Harbor plant after a week's shutdown.

The hearths will supply steel for the company's 40-in. and strip mills.

The coke plant and two blast furnaces also have been put in operation.

New York Show Week Events

Jan. 5	8 P.M.	Stutz Dealer Meeting (There will be a meeting at Stutz headquarters every day during the Show from 4 to 5 P.M.)	16 W. 61st Street
Jan. 6		Packard Pre-Show Meeting and Luncheon	Hotel Astor
		Packard Dealer Luncheon	Hotel Roosevelt
Jan. 8	11 A.M.	Stutz Export Organization	Hotel Commodore
Jan. 9	10 A.M.-5 P.M.	National Auto Dealers Association Meeting	Hotel Commodore
	12 Noon	American Automobile Assoc. Meetings (Contest Board Safety Committee, Management and Personnel Training Committee and Membership and Sales Promotion Committee.)	Hotel New Yorker
	12 Noon	Buick - Olds - Pontiac Dealer Luncheon	Hotel Commodore
		Marmon Dealer Luncheon	Hotel Commodore
	12.30 P.M.	International Day Luncheon	NACC offices
	2.00 P.M.	International Day Conference	NACC offices
	6.30 P.M.	Rubber Manufacturers Assoc. Dinner	Hotel New Yorker
	7.00 P.M.	Combined Dealer Banquet of Chrysler, De Soto, Dodge and Plymouth organizations	71st Regiment Armory, 34th & Park Ave.
Jan. 10	12 Noon	Willys-Overland Dealer Luncheon	Hotel Commodore
		Auburn Dealer Luncheon	Hotel Commodore
		Reo Dealer Luncheon	Hotel Biltmore
		American Automobile Assoc. Natl. Board of Directors' Meeting	Hotel New Yorker
		Marmon Dealer Luncheon	Hotel Commodore
	6.30 P.M.	Natl. Automobile Chamber of Commerce Banquet	Hotel Commodore
Jan. 11		Cadillac Dealer Luncheon	Waldorf-Astoria
		Marmon Dealer Luncheon	Hotel Commodore
Jan. 12		Marmon Dealer Luncheon	Hotel Commodore
	6.30 P.M.	Society of Automotive Engineers Annual Dinner	Hotel Pennsylvania
Jan. 13		Marmon Dealer Luncheon	Hotel Commodore

Uniform Highway Code is Endorsed by Executives of Automobile Plants

Members of National Automobile Chamber of Commerce Approve Stand of State Vehicle Administrators Calling for Similar Laws

NEW YORK, Dec. 12—Anticipating that traffic regulation will be subject to review in most of the 44 states whose legislatures convene in regular session during 1933, directors of the National Automobile Chamber of Commerce approved the uniform code of dimensions and speed limitations for vehicles recently adopted by the American Association of State Highway Officials.

At the same time the Chamber directors expressed themselves in complete agreement with the purposes for which the organization of highway officials is seeking adoption of its code. Revision of the laws of each state in conformity with the provisions of the "model" code, it is believed, would—

A. Establish a fundamental prerequisite of highway design;

B. Permit the efficiency and safety of interstate motor traffic;

C. Facilitate the removal of undesirable vehicles and operations from highways; and

D. Aid in stabilizing the relationship between the highway and the motor vehicle.

In the provisions of the code, maximum dimensions of vehicles using state highways would be fixed at 8 ft. in width, 12 ft. 6 in. in height, 35 ft. in the length of single vehicles and 45 ft. in the length of vehicle combinations.

Liberalization is a feature of the speed provisions.

Excepting buses and trucks which would be restricted to a maximum limitation of 45 m.p.h., it is proposed that passenger vehicles be permitted to operate at speeds which "shall be consistent at all times with safety and the proper use of the roads."

A minimum speed limitation making it an offense to operate a vehicle unnecessarily at speeds so slow as to impede or block the normal and reasonable flow of traffic is also included in the code.

Vehicles equipped with solid or cushion rubber tires would be held to a maximum speed of 10 m.p.h.

The weight of commercial vehicles operated under load would be determined by two factors:

1. Provides that no wheel of a vehicle should carry more than 8000 lb. and no single axle of the vehicle should be permitted to carry more than 16,000 lb.

2. The gross weight limitations for vehicles would be determined upon a formula in which the length of the vehicle is a factor.

Credit Firm Sees 1933 Improvement

Commercial Credit Booklet Holds Mental Tone Must Be Changed Prior to Betterment

NEW YORK, Dec. 12—There is reason to be confident that 1933 should be a better year, the publication, "Credit Where Credit Is Due," of the Commercial Credit Co., says: Already the tangible depressing factors have passed, although unfavorable psychological factors persist in part.

No real turn, however, will occur, the publication says, until this mental tone improves.

"The year 1933 will be one in which the fundamentals, if undisturbed, favor a substantial measure of recovery but in which recovery will defer its start until the political hazards have been appraised and will depend, in degree, upon the extent to which those fundamentals are tampered with at Washington," the publication says.

"It will, in other words, have a hesitant beginning but a favorable ultimate prospect.

"It will be a year in which alert, resourceful, hard-driving methods, applied from the start, should reap a sound reward," the article continues. "In the early stages they will keep business from slipping backward and in the later months they will give it greater momentum in the forward drive which is, on the whole, to be expected as the various uncertainties become resolved into facts."

To prepare to take advantage of the upswing the publication advises immediate inventory of methods, men, machines and merchandise. The present, the article says, calls for reappraisals of advertising to determine if enough is being done to make the advertising investment profitable

Badger Bumper Plant On Auction Block

MILWAUKEE, Dec. 12 — All of the property of the Badger Mfg. Corp., West Allis, suburb of Milwaukee, for many years a leading manufacturer of automobile bumpers, is being sold at public auction this week by order of the board of directors.

The sale is in charge of Samuel L. Winternitz & Co., 1036 First National Bank Building, Chicago.

The inventory, including 100 pieces of machinery, is valued at $250,000, according to the notice of the sale.

Patterson Promoted By Harnischfeger

Donald B. Patterson, general sales manager of the Harnischfeger Corp., has been elected a vice-president of the company. The position has been vacant since Walter Harnischfeger became president upon the death of his father, Henry Harnischfeger, two years ago.

Arthur W. Coppin has been elected secretary. He was credit manager of the Federal Rubber Co. until his admission to the bar in 1923. In June, 1930, he became associated with Harnischfeger as attorney and manager of the credit department.

American Brass Resumes

KENOSHA, Wis., Dec. 14 — The American Brass Co. has reopened several departments which have been idle for some time following the booking of a large order for copper tubing from a leading manufacturer of automobile radiators.

The order will give the present working force a steady task for at least two months.

Seat Cover Maker In Enlarged Plant

COLUMBUS, Dec. 12—J. P. Gordon Co., one of the largest manufacturers of tire covers and seat covers in the country, has leased a four-story factory, into which it will move its plant soon after the first of the year.

Extensive remodeling has been started. The new factory will contain 40,000 sq. ft. more than in the former factory. Additional equipment will be installed.

Wayne Sales Down

DETROIT, Dec. 12—November registrations of passenger cars in Wayne County totaled 844, a decrease of 7 per cent from the October total and a decrease of 37 per cent from the November, 1931, total.

Plymouth was second with a total of 200, owing to its new six, while Ford was first with 286 and Chevrolet third with 111.

Commercial registrations totaled 108, representing a 24 per cent decrease from October figure and 39 per cent from the total for November last year. Ford was first with 58 units, Chevrolet second with 12 and Studebaker third with 8.

Superior In Canada

TORONTO, Dec. 12—Superior Piston Ring Co. has opened a factory at Walkerville for the manufacture of piston rings.

New Cars Step Up Tire Production

AKRON, Dec. 14—Increased productions of the major automobile plants are being reflected in better business conditions in the larger rubber factories here.

Shipments of tires from Akron to Detroit, Flint, South Bend and other automobile producing centers have gained sharply the latter half of November, and manufacturers here expect this better trend in their original equipment business to continue through December as result of the speeding up of production by automobile companies putting new models on the market at this time.

November and December are usually low production months for tire builders here due to the winter slump in the replacement business, but the greater demand this year for tires for the new model cars is expected to make December the best month for the larger factories here since June.

Goodyear, Goodrich and Firestone supply a large share of the new tires for General Motors, Ford, Chrysler, Studebaker and Hudson Essex cars, and all three of the companies are reported unusually busy for this period of the year turning out the new size and new design tires required for the new model cars now being introduced.

Canadian Plymouth Trebles Record

WINDSOR, Dec. 14—Canadian Plymouth shipments for November were three times the volume for any previous November in Plymouth history, and the December orders already assure us an equal or better record, John D. Mansfield, president, Chrysler Corp. of Canada, Ltd., said.

"We are greatly encouraged over the quick and enthusiastic reception accorded the New Plymouth Six by the dealers and the public and look forward to another year of progress for our Plymouth division."

List prices are as much as $95 lower than the prices on 1932 four-cylinder models. The following figures are f.o.b. factory Windsor, freight and government taxes extra:

Four Door Standard Sedan $750. Four Door Special Sedan $785. Business Coupe $675. Standard Coupe with rumble seat $730. Special Coupe with rumble seat $765. Standard Convertible Coupe $790. Special Convertible Coupe $843.

Bus Lines Assessed

NASHVILLE, Dec. 12—The assessment of bus and truck lines in Tennessee has just been completed in the motor vehicle division of the State Railroad and Public Utilities Commission for 1932-33, and shows a total assessment of $1,089,815, of which $796,600 is the valuation on bus line equipment.

The assessment is the first ever made, as the code commission amended the Railroad and Public Utilities Act to include assessment of motor transportation lines.

There are 63 bus lines in the state operating 341 buses with a seating capacity of 7262 passengers. There are 169 truck lines, operating 459 trucks with a total capacity of 900 tons, it was stated.

Faith Company In Canada

TORONTO, Dec. 12—Faith Mfg. Co. of Canada Ltd. has been organized at Hamilton as the Canadian subsidiary of the Faith Mfg. Co., Chicago, to manufacture automobile ornaments and accessories, motors, generators and electrical fittings and a general line of die castings.

Walker Vehicle Co.

CHICAGO, Dec. 5—The Walker Vehicle Co. (electric trucks, etc.), controlled by Commonwealth-Edison Co., failed to meet the payment of interest due on its $1,250,000 of 5½ per cent notes and also a $100,000 serial maturity.

A 30-day grace period is provided before actual default.

Guiberson Diesel Uses White Block

DALLAS, Dec. 13—Guiberson Diesel Engine Co., which has been engaged in development of Diesel-type aircraft engines, sold a Diesel truck and bus engine which represents a conversion of the White Model 1-A engine. This is a six-cylinder engine with a bore of 4½ and a stroke of 5¾ in., the piston displacement being 548 cu. in.

This engine, fitted with a special cylinder head to give a 14 to 1 compression ratio, and with the Guiberson variable-stroke injection pump and closed type injector valves, develops 102 hp. at 1800 r.p.m.

The maximum pressure during the combustion period is given as 940 lb. per sq. in. and the brake mean effective pressure is 82 lb.

The complete engine weighs 2140 lb. or slightly more than 20 lb. per horsepower. The fuel consumption at rated load is given as 0.52 lb. per horsepower per hour.

Midland Steel Pays Dividend

CHICAGO, Dec. 12 — Midland Steel Products Corp. has maintained its 8 per cent dividend rate on preferred stock with the authorization of a $2 payment.

+ + CALENDAR OF COMING EVENTS + +

FOREIGN SHOWS

Berlin International .....Feb. 12-22

CONVENTIONS

Rubber Mfr.'s Assoc., New York City, Annual Meeting .....Jan. 9
Annual Society of Automotive Engineers Dinner—New York..Jan. 12
Highway & Building Congress, Detroit .....Jan. 16-20
American Road Builders' Annual, Detroit .....Jan. 16-20
Steel Founders Soc. of America—Annual Meeting—Detroit...Jan. 16-21
Annual Society of Automotive Engineers Meeting — Detroit Jan. 23-26
American Soc. for Testing Materials (Annual Meeting)...June 26-30

SHOWS

National Automobile Show, New York .....Jan. 7-14
Pacific Automobile Show, San Francisco .....Jan. 7-14
Los Angeles, Calif., Automobile Show .....Jan. 7-15
St. Louis, Mo., Automobile Show.Jan. 8-14
Buffalo, N. Y., Automobile Show Jan. 14-21
Cleveland, Ohio, Automobile Show Jan. 14-21
Milwaukee, Wis., Automobile Show Jan. 14-21
Newark, N. J., Automobile Show Jan. 14-21
Cincinnati, Ohio, Automobile Show .....Jan. 15-21
Brooklyn, N. Y., Automobile Show Jan. 16-21
Philadelphia, Pa., Automobile Show .....Jan. 16-21
Baltimore, Md., Automobile Show Jan. 21-28
Detroit, Mich., Automobile Show, Jan. 21-28
Boston, Mass., Automobile Show Jan. 21-28
Hartford, Conn., Automobile Show Jan. 21-28
Pittsburgh, Pa., Automobile Show Jan. 23-28
Harrisburg, Penna., Automobile Show .....Jan. 25-28
Rochester, N. Y., Automobile Show .....Jan. 23-28
Portland, Me., Automobile Show Jan. 28-Feb. 4
Washington, D. C., Automobile Show .....Jan. 28-Feb. 5
National Automobile Show, Chicago .....Jan. 28-Feb. 4
Springfield, Mass., Automobile Show .....Jan. 30-Feb. 4
Lancaster, Pa., Automobile Show Feb. 1-4
Indianapolis, Ind., Automobile Show .....Feb. 4-11
Denver, Colo., Automobile Show Feb. 6-11
Springfield, Ill., Automobile Show Feb. 9-11
Kansas City Automobile Show..Feb. 11-18
Toledo, Ohio, Automobile Show .Feb. 11-18
Rapid City, S. D., Automobile Show Feb. 14-18
Wichita, Kans., Automobile Show Feb. 21-24
Evansville, Ind., Automobile Show Feb. 24-26
Des Moines, Iowa, Automobile Show .....Feb. 27-Mar. 4
Seattle, Wash., Automobile Show Feb. 26-Mar. 4